United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number
0800-0497

Case Title:
Energy Laboratories, Inc.

Reporting Office:
Denver, CO, Area Office

Subject of Report:
Interview of [redacted] Florida Department of Health

Activity Date:
August 2, 2011

Reporting Official and Date:
[redacted]
Special Agent
23-MAY-2012, Signed by: [redacted]

Approving Official and Date:
[redacted]
Special Agent in Charge
24-MAY-2012, Approved by: [redacted]
Assistant Special Agent in Charge

SYNOPSIS

On August 2, 2011, [redacted] Florida Department of Health (FDOH) and Chairman of the Board for the National Environmental Laboratory Accreditation Conference (NELAC) was interviewed in connection with this investigation.

DETAILS

On August 2, 2011, Environmental Protection Agency (EPA) Criminal Investigation Division (CID) Special Agent (SA) [redacted] and US DOJ ECS [redacted] traveled to Jacksonville, Florida to interview [redacted] Director of the FDOH Bureau of Laboratories.

After SA [redacted] and ECS [redacted] identified themselves through the display of credentials [redacted] agreed to an interview. The following information is a summary of the statements made by [redacted] during the interview:

ECS [redacted] asked [redacted] to provide information about [redacted] educational and professional background. [redacted] stated that in 1973 [redacted] obtained a Bachelor of Science degree in Chemistry from the University of Florida (UF).
After graduating from UF [redacted] was employed installing window tint and was unemployed for about one year.

In 1975, [redacted] was employed at Life Sciences, St. Petersburg, Florida, as a Laboratory Animal Technician. [redacted] stated the lab raised several colonies of mice that were used in cancer research. [redacted] worked at Life Sciences until [redacted] was hired by the FDOH.

[redacted] has been working for FDOH since 1981 and has held several different positions. [redacted] was initially hired as a Clinical Chemist working with infant metabolic screening. [redacted] worked in this capacity for approximately two and one-half years. [redacted] subsequently held the following positions at FDOH: Analyst at the Clinical Chemistry lab performing cholesterol and diabetes screening; Environmental Chemistry Lab performing pesticide testing as a volatile organics analyst; Supervisor for the gas chromatography mass spectrometry semi-volatile organics lab; Administrator over the inorganics section and overall Environmental Chemistry Lab; and from 1997 to the present, [redacted] has been the Program Administrator for FDOH's Environmental Laboratory Certification Program (ELCP - also known as the Drinking Water Certification Program).

[redacted] stated [redacted] is responsible for the day-to-day operation of the ELCP. [redacted] advised that [redacted]

staff consists of 14 FTEs (full time entities): four Chemist II's also known as In-House Professionals, one automation specialist, seven assessors and two assessors scheduled to begin the employment on Friday, August 12, 2011. [redacted] advised that [redacted] is the Quality Systems Officer. [redacted] explained that an assessor performs laboratory inspections on site and assesses the way a lab operates against quality standards. [redacted] stated that most assessors are chemist by study and are all classified as chemists. [redacted] advised that lab assessments conducted by the ECLP are for general chemistry and microbiology.

[redacted] was asked to explain FDOH and its relation to NELAC. [redacted] explained that FDOH is a recognized accreditation body by NELAC. FDOH agreed to adopt NELAC standards as developed by the National Environmental Laboratory Accreditation Program (NELAP) Institute. [redacted] advised that NELAC was originally a "loose association" made up of states and focus groups. EPA wanted to NELAC become a national program. NELAC was based on the International Organization for Standardization (ISO) Standards. [redacted] advised that NELAC standards were approved by governmental representatives. If there was an issue with a lab and the lab challenged the issue EPA was the deciding official. [redacted] advised that EPA eventually decided it could not have direct implementation and the organization subsequently became The NELAC Institute (TNI). (Investigator's note: According to TNI's internet page, TNI was created on November 6, 2006.)

[redacted] was asked what other states are recognized as accreditation bodies. [redacted] replied there are 15 states: Florida, New Hampshire, New York, New Jersey, Pennsylvania, Virginia, Louisiana (two bodies: one drinking water and one non drinking water), Illinois, Kansas, Texas, Utah, California, Oregon and Minnesota. [redacted] advised that some states are accredited to NELAP standards while others are not. Accreditation bodies certify laboratories all over the country. [redacted] advised that some laboratories (4) are located in Canada and a few labs are located in Puerto Rico. Assessors travel to the labs to conduct the assessments.

[redacted] explained that laboratories can choose the accrediting body they want to certified them. For example, a lab can choose FDOH as the primary or secondary certification body because certification by a recognized NELAC accreditation body is reciprocal. All certified bodies are performing the same audits. Originally, NELAP had planned all states serve as certifying bodies but it depends on each state's regulations.

Florida state statutes require a lab to be drinking water certified to analyze drinking water samples. Domestic wastewater effluent must also be certified. Other states have the same requirements.

[redacted] was asked what type of records would FDOH have relating to the ELI Casper laboratory. [redacted] replied FDOH would have any documentation and/or correspondence received from ELI Casper, past certification information, assessment reports, corrective action reports (CARs), agency actions regarding suspension or reinstatement, checklists used in the assessments, and possibly other documents.

[redacted] advised that in [redacted] role as the Program Administrator for the ELCP [redacted] reviews draft assessment reports. [redacted] mostly performs a general review for format and grammatical errors; however, [redacted] might correct an error if it is contrary to the standards.

[redacted] advised that [redacted] "rarely" performs any assessments personally. [redacted] stated [redacted] was trained and learned how to perform assessments through a Basic Assessor's Course and through EPA's Certification Officers Training Course in Cincinnati, Ohio.

[redacted] advised that new personnel at FDOH must undergo training and participate in four assessments with an experienced assessor before they can be a lead assessor on an assessment. [redacted] stated that it is difficult to find a new assessor that has experience performing assessments. The job requires the assessor to travel approximately two weeks out of the month to perform assessments.

According to [redacted] ELI Casper has been NELAC certified by FDOH since at least 2000. [redacted] advised that FDOH's document retention policy is ten years. [redacted] located ELI Casper's active file which consisted of three binders. [redacted] indicated the information contained in the binders goes back to 2000.

[redacted] located what [redacted] believed to be ELI Casper's initial FDOH application for certification dated July 19, 2000. The certification request was for ELI Casper's facility located at 2393 Salt Creek Highway, Casper, Wyoming. Sheryl Garling is listed as the Lead Technical Director and [redacted] as the Laboratory Director. The Quality Assurance Officer(s) are listed as [redacted]. A copy of said Application For Certification Of Environmental Testing Laboratories is attached to this report.

[redacted] explained the certification application process as follows: 1) FDOH receives and review the initial application; 2) Ensure the lab has completed the required Proficiency Testing (PT) assessments; 3) Where required additional information may be requested of the lab; 4) Perform inspection; 5) Identify deficiencies if any were noted; 6) prospective lab replies to the deficiencies identified through a CAR; 7) Some labs will be a candidate for denial (i.e. numerous deficiencies or not performing tests accurately/according to standards.)

[redacted] provided a copy of a letter dated December 4, 2000, from [redacted], ELI Casper's Q/A Director to [redacted], FDOH ELCP. [redacted] explained that Denny was a FDOH assessor in 2000 who retired in 2010.

[redacted] was asked if the FDOH conducted a NELAC assessment at ELI Casper in 2007. [redacted] replied that an assessment was completed in February 2007 where both the ELI Casper and ELI Billings, Montana labs were assessed in the same week.

[redacted] explained that when FDOH certifies laboratories it is done by facility. If the lab consists of two buildings that are not on a contiguous property FDOH treats the lab as two facilities and requires two certifications; one for each property. This is the determination that was made in February 2007 for ELI Casper. During the time of the February 2007 assessment ELI Casper had relocated its radiochemistry (RAD) lab from the main lab located at Salt Creek Drive to a facility located at 2325 Kerzell Lane, Casper, Wyoming. The RAD lab was considered a new facility and ELI Casper submitted an application for the RAD lab located at Kerzell Lane. A copy of the Application For Certification Of Environmental Testing Laboratories, dated February 16, 2007, is attached to this report. Accordingly in February 2007, FDOH assessors conducted an assessment of

both the ELI Casper (general chemistry) lab and the (RAD) lab.

[redacted] advised that [redacted], was the lead FDOH assessor for ELI Casper's assessment in 2007. The dates of the assessment were February 14-16, 2007. [redacted] provided copies of the following documents from the February 2007 NELAC audit at ELI Casper: Pre-Assessment Checklists (main and RAD labs); Opening Conference Checklist; On-Site Laboratory Assessment Quality Systems Checklist; and the Statement of Deficiencies and Plan of Correction.

[redacted] was asked to explain the process used to notify laboratories of scheduled assessments. [redacted] advised that notifications of assessment dates are made by e-mail. FDOH's database contains primary contact information including an e-mail address for the labs. Assessment checklists are either mailed or e-mailed to the listed contact for the lab prior to the scheduled assessment. This notifies the lab of the areas being covered in the assessment.

The Quality Systems Assessment Checklist (QSAC) is a technical checklist that includes chemistry, microbiology and RAD. The QSAC is completed by the assessor during the assessment of the lab. A checkmark represents that the item is "okay" while the "x" represents that something was wrong and would note the problem.

The Statement of Deficiencies and Plan of Correction form is sent to the lab with the deficiencies noted during the assessment. The laboratory fills in the form with responses to each deficiency. [redacted] was asked if a follow-up audit would occur with a lab that had deficiencies. [redacted] stated "it depends on what the auditor sees. Was it a repeat deficiency?" [redacted] advised that there may be an "occasional follow-up assessment" but most of the time a review of the lab's corrective actions is completed during the next audit. If there is a repeat deficiency, FDOH requires the lab to send documentation to prove the deficiencies have been corrected.

The Quality Systems Checklist for the audit was reviewed with [redacted] ECS [redacted] asked [redacted] to point out the section on the checklist that notes balances. [redacted] advised that balances are considered "support equipment" and would be listed under 5.5.5.2.1 of the checklist. ECS Howard noted that section 5.5.5.2.1 on the 2007 audit reflected an "x" and asked if the "x" represented a problem with the data. [redacted] replied, "It is not what we are looking for." [redacted] stated [redacted] was not sure how the assessors would be able to discover false information on calibration logs. [redacted] stated that if an assessor discovered a suspicious balance log the assessor might check it that day to see what the results were.

ECS [redacted] showed [redacted] a copy of the calibration logs that were reportedly falsified. [redacted] stated that the logs are usually hand written and was surprised the logs in question were computer generated. [redacted] made the observation that the values on the log "are pretty perfect. [It] raises a flag." [redacted] further stated that the four significant figures are repeatedly the same. [redacted] advised that if [redacted] would have been looking at the logs during an assessment it would have caused [redacted] to ask questions and "dig deeper." The fact the logs are electronic and "so pretty" would cause [redacted] to ask for the actual log; the information as taken during the calibration. [redacted] stated it appeared to [redacted] that the person who filled out the logs was "either someone deliberately being fraudulent or someone being lazy."

It was explained to [redacted] that the December calibration log contained readings on days that the lab was shut down and the balance equipment was stored in cabinets. [redacted] stated had [redacted] known that and if the assessor on site [redacted] might have asked to see the data that was generated on the days the scale had been stored. [redacted] would look at residues and would ask for the balance calibrations for comparison.

[redacted] was asked if it mattered that the logs were falsified. [redacted] replied, "It would be a problem. It means it [calibration] was never done." [redacted] advised that if the lab was preparing its own standards the fact the balance was not calibrated would be a big problem.

[redacted] made the distinction that FDOH performs lab assessments and not audits. [redacted] stated the program is not about enforcement but rather about compliance. [redacted] stated that FDOH/NELAC "is not out to shut a lab down but rather to bring the lab into compliance."

[redacted] advised that the deficiency noted in the report was not related to the calibration logs. The deficiency had to do with sample volume by weighing the container before and after to determine sample volume.

[redacted] stated that if an assessor learned that the lab was falsifying calibration logs that would be enough for the assessor to deny the lab's certification. A discovery of falsified data would have been taken to FDOH's attorney to pursue action against the lab.

[redacted] explained that the purpose of standard methods is for consistency and data integrity. The labs are certified for their demonstration of capability to perform the analyses according to standard methods. The logs are significant in determining whether or not to certify the lab. [redacted] advised that any one deficiency that remained uncorrected would be sufficient reason to not certify a lab.

[redacted] explained that the Statement of Deficiencies and Plan of Correction (FDOH Form 1137) is completed by the assessor shortly after the lab assessment. [redacted] referred to the report as the "CAR" or corrective action report. [redacted] advised that FDOH sends the CAR plan listing the deficiencies to the lab that was assessed. The lab submits its response to FDOH. FDOH then reviews the CAR plan and advises the lab if the plan is acceptable or not. The lab then submits a modified CAR if necessary.

[redacted] provided two copies of the CAR for the ELI Casper February 14-16, 2007 assessment. [redacted] advised the CAR copy with the I.D. Prefix Tags circled is the initial response from ELI Casper. It is dated 5/22/2007 and stamped received 5/23/2007. The second CAR report with the hand written date "6/15/2007" is a copy that was submitted later. Copies of said reports are attached to this Investigative Activity Report (IAR).

ECS [redacted] asked [redacted] if there is a requirement for the data (i.e. calibration result) to be recorded immediately. [redacted] advised that there is a NELAC standard that requires the all generated data to be entered at the time of observation. [redacted] stated it was a recordkeeping requirement under section 5.4.12.1.5(e) of the NELAC standards. A copy of said requirement as highlighted by [redacted] is attached to this IAR.

FDOH/NELAC wants the labs to have data integrity. The labs must demonstrate capability. [redacted] stated that if a lab notices falsification of data on its own, there is a standard (NELAC) requiring the lab notify its clients. [redacted] advised that integrity comes from the top down at a laboratory. There must be a culture in the lab requiring data integrity. Lab management should not be pressuring employees because it could cause the employees to cut corners.

[redacted] advised that there are a number Quality Systems Checklists (QSC) for various standards of lab operations. [redacted] stated the QSCs include: a general QSC for the overall operation of the lab; a QSC for various disciplines such as chemistry and microbiology; a QSC that is method specific; and a QSC that is analyte specific.

ECS [redacted] asked [redacted] if it is true that any intentional false statement given to a certification agency must be unacceptable. [redacted] replied, "Yes it is." [redacted] advised there is a Florida Statute specifically against providing false information. [redacted] stated, "If they [lab] intentionally falsify something it is important. It means a lot."

ECS [redacted] asked [redacted] if a lie from a lab could potentially influence the regulatory agency. [redacted] replied, "Yes." [redacted] state that the lead assessor compiles all information gathered during an assessment and includes the information in the assessment report.

ECS [redacted] asked [redacted] if there was a problem with a lab running PT samples multiple times rather than analyzing the samples in the same way they are normally run on a day-to-day basis. [redacted] advised it would be a problem because the certifying agency wants to see the lab's proficiency in running PT samples like it would on regular samples. All analysis should be run in the same way; no extra quality control (QC) work should be completed. When testing capabilities, the certifying agency wants the laboratory to run the PT samples the same way as the regular samples are run.

[redacted] was asked if there was a problem with a laboratory failing to meet the detection limit yet report a result to the client without advising the client it failed to meet the detection limit. [redacted] replied that if a lab failed to achieve its detection limit, i.e. 1 pCi/L because it was only able to detect at 3 pCi/L and report to the client a detection limit of 1pCi/L, it "is a huge problem." [redacted] advised that a situation like that "is clearly falsification" and further stated that the "data is unreliable." [redacted] stated that FDOH requires a lab to report its detection limit to all analysis.

[redacted] was asked if it was okay for a lab to report the "regulatory limit" (RL) as opposed to the lab's detection limit on a results report going to a client. [redacted] replied that "reporting the regulatory limit rather than the actual diction limit is deceptive." [redacted] further stated that the "MDL" is the actual detection limit, not the RL. (Investigator's note: MDL refers to the "method detection limit.")

[redacted] was asked if there was a problem with a lab that uses one test procedure and equipment to run a sample yet reports (misreports) to the client it is using another test and equipment; that is, the lab is reporting on a test it is not certified to perform. [redacted] replied that if a lab is certified for a particular EPA method and use, for example, a standard method and do not report it on the results so that it appears to the client that the EPA method was used "it is fraudulent and deceptive."

[redacted] was asked what could happen to a laboratory that reported to a client that samples had been run using one method when in fact another method had been used. [redacted] replied that if the allegation was substantiated the laboratory could lose its certification but usually the lab will be sent a cease and desist letter.

ECS [redacted] asked [redacted] if allowing samples to cool on a counter as opposed to using a desiccator in a Total Suspended Solids (TSS) and/or Total Dissolved Solids (TDS) analysis would be a problem. [redacted] advised that there specific steps that are taken for each test (TSS & TDS) and that the purpose is to dry out the sample in an oven and allow the sample to cool in the desiccator in a controlled environment for a specified amount of time to obtain accurate weights (readings). Allowing samples to cool on a counter can affect the results; it would depend on a number of factors. However, the methods require that a desiccator be used for both the TSS and TDS analysis. The methods require the samples to "cool in a desiccator."

[redacted] was asked about the significance of actually performing QC checks in a run rather than just cutting and pasting QC information from a previous, unrelated run. [redacted] advised that would be a problem. [redacted] stated the harm would be that the analyst would not have a "known sample" that would indicate if the analytical system is running correctly. [redacted] explained that the point of a control sample is to determine if the measurement system is working or not. If an analyst cuts and pastes QC data it is deceptive because they are alleging they did something that they did not actually do.

ATTACHMENT

1. ELI Casper's Application For Certification FDOH (Main Lab), 7/13/2000
2. ELI Casper Letter to FDOH re: Certification FDOH (Main Lab), 12/4/2000
3. ELI Casper's Application for Certification FDOH (RAD Lab), 2/16/2007
4. ELI Casper's Pre-Assessment Checklists (Main & RAD Lab), 2/2007
5. ELI Casper's Opening Conference Checklists (Main & RAD Lab), 2/14/2007
6. ELI Casper's Quality Systems Checklist (Main Lab), 2/14/2007
7. ELI Casper's Statement of Deficiencies and Plahn of Correction, stamped 5/23/2007
8. ELI Casper's Statement of Deficiencies and Plan of Correction, received 6/15/2007
9. NELAC Quality Systems Section 5.4.12.1.5, re: Data Recording

5

STATE OF FLORIDA
Department of Health, Bureau of Laboratories
1217 Pearl Street, Jacksonville, FL 32202
P.O. Box 210, Jacksonville, FL 32231 (904) 791-1599

APPLICATION FOR CERTIFICATION OF ENVIRONMENTAL TESTING LABORATORIES

Please complete all applicable parts of this form using a typewriter or computer, or print in ink.
Enclose $200.00 (US) application fee and return to the above address.

1. Name of Laboratory or Facility (As it should appear on the Certificate):
Energy Laboratories, Inc

2. Description of Laboratory: (check one)
- ☐ State Health Laboratory
- ☐ County Health Department
- ☐ Other State Laboratory
- ☐ Pollution Control Facility
- ☐ Utility Laboratory
- ☐ Federal Organization
- ☐ University/Academic Dept.
- ☒ Commercial Laboratory
- ☐ Research Institution
- ☐ Other (please describe):

3. Location (physical address) of Laboratory:
2393 Salt Creek Hwy

4. County
NaTrona

City: Casper State: WY Zip: 82601

5. Mailing Address: (if different from above)
PO Box 3258

City: Casper State: WY Zip: 82602

6. Billing Address: (if different from above)
PO Box 3258

City: Casper State: WY Zip: 82602

7. Description of geographical location: (simplified directions to the laboratory)
See Attached map

RECEIVED
Bureau of Laboratories
JUL 19 2000
Environmental Laboratory Certification Program

8. Name of Owner:

9. Address of Owner:

City: State: Zip:

10. Name of Lead Technical Director (e.g., Laboratory Director): 11. Area Code Telephone Extension
Sheryl Garling (888) 235-0515

12. Name of Quality Assurance Officer [redacted] 13. Area Code Telephone Extension

14. Name of Contact Person [redacted] 15. Area Code Telephone Extension

16. Hours of operation: 8-5 M-F

17. E-mail Address: Energy@EnergyLab.com

18. Facsimile Number (307) 234-1639

19. Certification Number (if already certified):

20. EPA Number: WY00002

21. Primary Accrediting Authority (if requesting reciprocal certification):

22. Laboratory Facilities: Are all sample preparations and test methods for requested analytes performed at the above physical address? Yes ☒ No ☐

23. Please check if this application is for Additional Analytes and Test Methods, in which case do not include methods and analytes you are currently certified to perform ☐ Additional Methods and Analytes

DH 1762, 7/99 (Obsoletes previous editions which may not be used)

ATTESTATION OF COMPLIANCE

I, [redacted] of Energy Laboratories, Inc
(Laboratory Director or QA Officer) (Laboratory Name)

understand and acknowledge that the laboratory is required to be continually in compliance with all the provisions and standards set forth in Chapter 64E-1 Florida Administrative Code (FAC), Certification of Environmental Testing Laboratories, which have been determined to be equivalent to the National Environmental Laboratory Accreditation Conference (NELAC) standards, and shall be subject to suspension, revocation, and denial of accreditation as specified therein. I also understand and acknowledge that the laboratory is subject to the enforcement and penalty provisions in Sections 403.0625 and 403.863 Florida Statutes and of any secondary accrediting authorities from whom I have obtained accreditation.

I further attest that all certified environmental analyses performed are done in accordance with the provisions and standards in Chapter 64E-1 FAC, which have been determined to be equivalent to the NELAC standards.

I hereby certify that I am authorized to sign this application on behalf of the applicant/owner and that there are no misrepresentations in my answers to the questions on this application. The information, statements, facts, and representations given and made are true and correct, and I am aware that any misrepresentations or falsifications constitute grounds for the imposition of penalties as provided by law.

[redacted]
(Signature, QA Officer or other designated responsible individual)

[redacted]
(Printed Name of Quality Assurance Officer)

Energy Laboratories, Inc
(Printed Legal Name of Laboratory)

13 July 2000
(Date)

Sheryl Gurling
(Signature, Technical Director(s))

SHERYL GARLING
(Printed Name, Technical Director(s))

INSTRUCTIONS AND CHECKLIST

X Please request the desired EPA Regulatory Programs, Test Methods, and Analytes for certification by:

1. Placing an '**X**' in the blank before each program-method-analyte combination;
2. Circling the requested parameters; or
3. Writing in the requested method and analyte (if not listed) on Pages 7-44

X Please arrange through your proficiency test sample provider for results from the latest three testing rounds attempted, for each pending analyte and applicable sample matrix, to be sent to our office.

Note: Testing rounds all must have occurred within the last 18 months.

X Please submit one copy of the laboratory's documented Quality Manual.

NA If you are requesting reciprocal certification, please submit a copy of your Certificate, list of accredited Fields of Testing, and the report from the latest on-site inspection of the laboratory by an approved NELAP accrediting authority.

(If such documents less than two years old are not available or do not include the requested test methods and analytes, the FL Department of Health can schedule an on-site inspection at the laboratory's request)

___ Complete and submit Pages 1-6 describing the laboratory's personnel & location, attesting to compliance with Florida's certification regulations, and providing the additional information required by NELAC Section 4.1.7.

The laboratory will be afforded one year from the Department's receipt date of this application form to participate in three proficiency testing rounds from an approved provider, revise its Quality Manual as necessary to contain the required elements, and receive one on-site inspection by authorized representatives from the Florida Department of Health or alternate (if laboratory is out-of-state) NELAP-approved accrediting authority, in order to complete this application for certification.

For Department of Health use only:

1 ___	2 ___	3 ___	4 ___	5 ___	6 ___	7 ___	8 ___	9 ___	10 ___
11 ___	12 ___	13 ___	14 ___	15 ___	16 ___	17 ___	18 ___	19 ___	20 ___
21 ___	22 ___	23 ___	24 ___	25 ___	26 ___	27 ___	28 ___	29 ___	30 ___
31 ___	32 ___	33 ___	34 ___	35 ___	36 ___	37 ___	38 ___	39 ___	40 ___
41 ___	42 ___	43 ___	44 ___						

PERSONNEL (LABORATORY TECHNICAL DIRECTORS)

POSITION / TITLE	NAME / ID NUMBER	ACADEMIC TRAINING (e.g. H.S., BS Chemistry, 20 sem-hr Microbiology)	AREA OF SPECIALTY (Years / Area)	EXPERIENCE	PHONE NUMBER
Lab Director	Sheryl Garling	B.S. Civil Eng.		20+Years	(888)235-0515
See Section 4, Qualifications Manual for more Information.					

QUALITY MANUAL

Please Indicate, by section number and/or page number, where the following elements are found in the submitted Laboratory Quality Manual:

MANDATORY ELEMENTS & NELAC REFERENCE	QUALITY MANUAL REFERENCE
5.5.2 - Title Page	Page 1
5.5.2(a) - Quality Policy Statement, Objectives, & Commitments by top management	Page 4-5
5.5.2(b) - Organization & Management Structure, organizational charts, relationship to parent organization	Page 4, 16-17, 37
5.5.2(c) - Relationship between Management, Technical Operations, Support Services, & Quality System	Page 16-17, 37
5.5.2(d) - Procedures for Control & Maintenance of Documentation; Document Control System	Page 29, SOP 10-001
5.5.2(e) - Job Descriptions of Key Staff, plus reference to job descriptions of other staff	Page 16, SOP 10-003
5.5.2(f) - Identification of Approved Signatories for the Laboratory (e.g. for laboratory test reports)	Page 26, SOP 30-000
5.5.2(g) - Procedures for Achieving Traceability of Measurements	Page 22, 23
5.5.2(h) - List of All Test Methods, under which accredited testing is performed	SOP 20-002
5.5.2(i) - Procedures for Reviewing New Work & Ascertaining Appropriateness of Facilities & Resources prior to commencing new work	Page 10-11
5.5.2(j) - Reference to Calibration and/or Verification Test Procedures Used	Page 22
5.5.2(k) - Procedures for Handling Submitted Samples	Page 20-21, SOP 20-001
5.5.2(l) - Reference to Major Equipment, Reference Standards, Facilities, & Services used in conducting tests	Page 15, 34
5.5.2(m) - Reference to Procedures for Calibration, Verification, & Maintenance of Equipment	Page 34
5.5.2(n) - Reference to Verification Practices (e.g. proficiency testing, interlaboratory comparisons, use of reference materials)	Page 13, SOP 20-002
5.5.2(o) - Procedures Followed for Feedback & Corrective Action when testing discrepencies are detected or when departures to documented policies & procedures occur	Page 33, SOP 30-004
5.5.2(p) - Management Arrangements for Permitting Departures from Documented Procedures or Standard Specifications	Page 5
5.5.2(q) - Procedures for Dealing with Complaints	Page 33, SOP 30-004
5.5.2(r) - Procedures for Protecting Confidentiality & Proprietary Rights (including national security)	Page 30
5.5.2(s) - Procedures for Audits & Data Review	Page 14, 25-26, SOP 30-000 SOP 30-001
5.5.2(t) - Procedures for Establishing that Personnel Are Adequately Experienced and/or Receive Any Needed Training	Page 16, SOP 10-002, Page 28
5.5.2(u) - Procedures for Training Personnel in Their Ethical & Legal Responsibilities (including potential penalties & punishments)	Page 16, 28, SOP 10-002

QUALITY MANUAL (continued)

MANDATORY ELEMENTS & NELAC REFERENCE	QUALITY MANUAL REFERENCE
5.5.2(v) - Reference to Procedures for Reporting Analytical Results	Page 26, SOP 30-000
5.5.2(w) - Table of Contents and Applicable Lists of References, Glossaries, & Appendices	Page 2-3, 35-38

OPTIONAL ELEMENTS & NELAC REFERENCE *	QUALITY MANUAL REFERENCE
5.5.1(c) - Policies, Objectives, & Commitment to Accepted Laboratory Practices & Quality of Testing Services	
5.5.3.2 - Procedures for Conducting the Annual Quality System Review by Management	
5.9.4.2.1(l) - Procedures for Determining the Number of Points for Establishing Initial Instrument Calibrations	
5.10.1.1 - Procedures for Assessing Data Integrity, Corrective Actions, Handling Complaints. Test methods, & Other Phases of Current Laboratory Activities	
5.10.3 - Procedures for Obtaining Representative Subsamples	
5.10.4(a) - Procedures to Check & Correct Data for Transcription and Calculation Errors	Page 25-26 SOP 30-000
5.10.4(b) - Procedures to Review & Evaluate All Quality Control Measures before data are reported	Page 25-26 SOP 30-000
5.10.5 - Procedures for Purchasing, Receiving, & Storing Materials used in technical operations	
5.11.1(a) - System for Uniquely Identifying Items (i.e. samples) to be tested	Page 20, SOP 20-001
5.11.2 - Sample Acceptance Policy	Page 20, SOP 20-001
5.11.2(f) - Procedures Followed When Samples Show Signs of Damage or Contamination	SOP 20-001
5.11.4 - Procedures to Avoid Deterioration, Contamination, or Damage to Samples during storage, handling, preparation, & testing	SOP 20-001
5.11.5 - Procedures for Disposal of Samples, Digestates, Leachates, & Extracts	Page 21
5.12 - Laboratory Record System	Page 24-25
5.12.2(d) - Laboratory Record Management System	
5.13(f) - Procedures for Preserving Confidentiality during Electronic or Electromagnetic Transmission of Test Results	
5.15(b) - Procedures to Ensure that Purchased Equipment, Materials, & Services Meet Specified Requirements	
D - Procedures for Development of Quality Control Acceptance/Rejection Criteria	

* These elements do not need to be present in the laboratory's submitted Quality Manual; however, if they are not included, these elements will be examined in the laboratory's quality documentation during the on-site assessment.

LABORATORY:

RADIOCHEMISTRY

SAFE DRINKING WATER ACT

_ GROSS ALPHA	X	EPA 900.0	_ EPA 600/4-75-008,p.1	_ SM7110B			_ R-1120-76			_ EPA 00-01	
_ GROSS ALPHA				_ SM7110C						_ EPA 00-02	
_ GROSS BETA	X	EPA 900.0	_ EPA 600/4-75-008,p.1	_ SM7110B			_ R-1120-76			_ EPA 00-01	
_ TOTAL ALPHA RADIUM		EPA 903.0	_ EPA 600/4-75-008,p.13	_ SM7500Ra B	_ D2460-90					_ EPA Ra-03	903.1
_ RADIUM-226		EPA 903.0	_ EPA 600/4-75-008,p.13	_ SM7500Ra B	_ D2460-90		_ R-1140-76			_ EPA Ra-03	
_ RADIUM-226		EPA 903.1	_ EPA 600/4-75-008,p.16	_ SM7500Ra C	_ D3454-91		_ R-1141-76	_ DOE Ra-05		_ EPA Ra-04	
_ RADIUM-228	X	EPA 904.0	_ EPA 600/4-75-008,p.24	_ SM7500Ra D			_ R-1142-76			_ EPA Ra-05	
_ URANIUM		EPA 908.0		_ SM7500U B			_ R-1180-76				
_ URANIUM	X	EPA 908.1		_ SM7500U C (17)	_ D2907-91		_ R-1181-76	_ DOE U-04			
_ URANIUM				_ SM7500U C (18)	_ D3972-90		_ R-1182-76	_ DOE U-02		_ EPA 00-07	
_ URANIUM					_ D5174-91						
_ RADIOACTIVE CESIUM		EPA 901.0	_ EPA 600/4-75-008,p.4	_ SM7500Cs B	_ D2459-72		_ R-1111-76				
_ RADIOACTIVE CESIUM		EPA 901.1		_ SM7120	_ D3649-91		_ R-1110-76	_ DOE 4.5.2.3			
_		EPA 901.1		_ SM7120	_ D3649-91		_ R-1110-76	_ DOE 4.5.2.3			
_ RADIOACTIVE IODINE		EPA 901.1		_ SM7120	_ D3649-91		_ R-1110-76	_ DOE 4.5.2.3			
_ RADIOACTIVE IODINE		EPA 902.0	_ EPA 600/4-75-008,p.6	_ SM7500I B							
_ RADIOACTIVE IODINE				_ SM7500I C	_ D4785-88						
_ RADIOACTIVE IODINE			_ EPA 600/4-75-008,p.9	_ SM7500I D							
_ STRONTIUM-89		EPA 905.0	_ EPA 600/4-75-008,p.29	_ SM7500Sr B			_ R-1160-76	_ DOE Sr-02		_ EPA Sr-04	
_ STRONTIUM-90		EPA 905.0	_ EPA 600/4-75-008,p.29	_ SM7500Sr B			_ R-1160-76	_ DOE Sr-02		_ EPA Sr-04	
_ TRITIUM	X	EPA 906.0	_ EPA 600/4-75-008,p.34	_ SM7500(3H)B	_ D4107-91		_ R-1171-76			_ EPA H-02	

* List Photon Emitters: _____

CLEAN WATER ACT

_ GROSS ALPHA	X	EPA 900.0	_ SM7110B	_ D1943-90	_ USGS 76-177,p.75,78		
_ GROSS BETA	X	EPA 900.0	_ SM7110B	_ D1890-90	_ USGS 76-177,p.75,78		
_ TOTAL ALPHA RADIUM	X	EPA 903.0	_ SM7500Ra B	_ D2460-90			
_ RADIUM-226		EPA 903.1	_ SM7500Ra C	_ D3454-91	_ USGS 76-177,p.81		

RCRA / CERCLA

_ GROSS ALPHA		EPA 9310
_ GROSS BETA		EPA 9310
_ TOTAL ALPHA RADIUM	X	EPA 9315
_ RADIUM-228		EPA 9320

OTHER METHODS

(9)

LABORATORY:

CHEMISTRY – CLEAN WATER ACT

METALS

	(AA - FL, HYD, COLD VAPOR)			(AA - FURNACE)			(ICP)		(ICP/MS)	
_ ALUMINUM	_ EPA 202.1		_ SM3111D	_ EPA 202.2	_ EPA 200.9	_ SM3113B	X EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ ANTIMONY	_ EPA 204.1	_ SM3111B		_ EPA 204.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ ARSENIC	_ EPA 206.3	X SM3114B		_ EPA 206.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ BARIUM	_ EPA 208.1		_ SM3111D	_ EPA 208.2		_ SM3113B	X EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ BERYLLIUM	_ EPA 210.1		_ SM3111D	_ EPA 210.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ BORON							X EPA 200.7	_ SM3120B		_____
_ CADMIUM	_ EPA 213.1	_ SM3111B	_ SM3111C	_ EPA 213.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ CALCIUM	_ EPA 215.1	_ SM3111B					X EPA 200.7	_ SM3120B		_____
_ CHROMIUM	_ EPA 218.1	_ SM3111B	_ SM3111C	_ EPA 218.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ CHROMIUM(VI)	_ EPA 218.4		_ SM3111C							_____
_ COBALT	_ EPA 219.1	_ SM3111B	_ SM3111C	_ EPA 219.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ COPPER	_ EPA 220.1	_ SM3111B	_ SM3111C	_ EPA 220.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ GOLD	_ EPA 231.1	_ SM3111B		_ EPA 231.2						_____
_ IRIDIUM	_ EPA 235.1	_ SM3111B		_ EPA 235.2						_____
_ IRON	_ EPA 236.1	_ SM3111B	_ SM3111D	_ EPA 236.2	_ EPA 200.9	_ SM3113B	X EPA 200.7	_ SM3120B		_____
_ LEAD	_ EPA 239.1	_ SM3111B	_ SM3111C	_ EPA 239.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ MAGNESIUM	_ EPA 242.1	_ SM3111B					X EPA 200.7	_ SM3120B		_____
_ MANGANESE	_ EPA 243.1	_ SM3111B		_ EPA 243.2	_ EPA 200.9	_ SM3113B	X EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ MERCURY	_ EPA 245.1	_ EPA 245.2	X SM3112B	_ EPA 1631*					X EPA 200.8	_____
_ MOLYBDENUM	_ EPA 246.1		_ SM3111D	_ EPA 246.2		_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ NICKEL	_ EPA 249.1	_ SM3111B	_ SM3111C	_ EPA 249.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ OSMIUM	_ EPA 252.1		_ SM3111D	_ EPA 252.2						_____
_ PALLADIUM	_ EPA 253.1	_ SM3111B		_ EPA 253.2						_____
_ PLATINUM	_ EPA 255.1	_ SM3111B		_ EPA 255.2						_____
_ POTASSIUM	_ EPA 258.1	_ SM3111B	_ SM3500K D				X EPA 200.7	_ SM3120B		_____
_ RHODIUM	_ EPA 265.1	_ SM3111B		_ EPA 265.2						_____
_ RUTHENIUM	_ EPA 267.1	_ SM3111B		_ EPA 267.2						_____
_ SELENIUM	_ EPA 270.3	X SM3114B		_ EPA 270.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ SILICA							X EPA 200.7	_ SM3120B		_____
_ SILVER	_ EPA 272.1	_ SM3111B	_ SM3111C	_ EPA 272.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ SODIUM	_ EPA 273.1	_ SM3111B	_ SM3500Na D				X EPA 200.7	_ SM3120B		_____
_ THALLIUM	_ EPA 279.1	_ SM3111B		_ EPA 279.2	_ EPA 200.9		_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ THORIUM									X EPA 200.8	_____
_ TIN	_ EPA 282.1	_ SM3111B		_ EPA 282.2	_ EPA 200.9	_ SM3113B	_ EPA 200.7			_____
_ TITANIUM	_ EPA 283.1		_ SM3111D	_ EPA 283.2			_ EPA 200.7			_____
_ URANIUM									X EPA 200.8	_____
_ VANADIUM	_ EPA 286.1		_ SM3111D	_ EPA 286.2			_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
_ ZINC	_ EPA 289.1	_ SM3111B	_ SM3111C	_ EPA 289.2			_ EPA 200.7	_ SM3120B	X EPA 200.8	_____
				* = additional Cold-Vapor AA method						
_ HARDNESS (calc.)	_ EPA 215.1 + 242.1		_ SM3111B				_ EPA 200.7	_ SM3120B		_____

LABORATORY:

CHEMISTRY – CLEAN WATER ACT

METALS

			(AA - FL, HYD, COLD VAPOR)				(AA - FURNACE)		(DCP)	(ICP/MS)	OTHER METHODS
_ ALUMINUM			_ I-3051-85					_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ ANTIMONY										_ AOAC 993.14	_____
_ ARSENIC	_ D2972-93B		_ I-3062-85				_ D2972-93C			_ AOAC 993.14	_____
_ BARIUM			_ I-3084-85				_ D4382-91		_ AES0029	_ AOAC 993.14	_____
_ BERYLLIUM	_ D3645-93A		_ I-3095-85				_ D3645-93B	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ BORON								_ D4190-82(88)	_ AES0029		_____
_ CADMIUM	_ D3557-90A	_ D3557-90B	_ I-3135-85	_ AOAC 974.27	_ ANSI, p.37		_ D3557-90D	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ CALCIUM	_ D511-93B		_ I-3152-85						_ AES0029		_____
_ CHROMIUM	_ D1687-92B	_ EPA 218.3	_ I-3236-85	_ AOAC 974.27			_ D1687-92C	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ CHROMIUM(VI)			_ I-1232-85								_____
_ COBALT	_ D3558-90A	_ D3558-90B	_ I-3239-85		_ ANSI, p.37		_ D3558-90C	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ COPPER	_ D1688-90A	_ D1688-90B	_ I-3270-85	_ AOAC 974.27	_ ANSI, p.37		_ D1688-90C	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ GOLD									_ AES0029		_____
_ IRON	_ D1068-90A	_ D1068-90B	_ I-3381-85	_ AOAC 974.27	_ SM3111C		_ D1068-90C	_ D4190-82(88)	_ AES0029		_____
_ LEAD	_ D3559-90A	_ D3559-90B	_ I-3399-85	_ AOAC 974.27			_ D3559-90D	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ MAGNESIUM	_ D511-93B		_ I-3447-85	_ AOAC 974.27					_ AES0029		_____
_ MANGANESE	_ D858-90A	_ D858-90B	_ I-3454-85	_ AOAC 974.27			_ D858-90C	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ MERCURY	_ D3223-91		_ I-3462-85	_ AOAC 977.22							_____
_ MOLYBDENUM			_ I-3490-85						_ AES0029	_ AOAC 993.14	_____
_ NICKEL	_ D1886-90A	_ D1886-90B	_ I-3499-85				_ D1886-90C	_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ PALLADIUM									_ AES0029		_____
_ PLATINUM									_ AES0029		_____
_ POTASSIUM			_ I-3630-85	_ AOAC 973.53							_____
_ SELENIUM	_ D3859-93A		_ I-3667-85				_ D3859-93B			_ AOAC 993.14	_____
_ SILVER			_ I-3720-85	_ AOAC 974.27	_ ANSI, p.37				_ AES0029	_ AOAC 993.14	_____
_ SODIUM			_ I-3735-85	_ AOAC 973.54					_ AES0029		_____
_ THALLIUM										_ AOAC 993.14	_____
_ TIN			_ I-3850-78								_____
_ TITANIUM									_ AES0029		_____
_ VANADIUM	_ D3373-93							_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ ZINC	_ D1691-90A	_ D1691-90B	_ I-3900-85	_ AOAC 974.27	_ ANSI, p.37			_ D4190-82(88)	_ AES0029	_ AOAC 993.14	_____
_ HARDNESS (calc.)	_ D511-93B		_ I-3152-85 + I-3447-85								_____
								(ICP)			
_ ARSENIC		_ EPA 7061	_ EPA 7062				_ EPA 7060	_ EPA 6010		_ EPA 6020	_____
_ CADMIUM		_ EPA 7130					_ EPA 7131	_ EPA 6010		_ EPA 6020	_____
_ CHROMIUM		_ EPA 7190					_ EPA 7191	_ EPA 6010		_ EPA 6020	_____
_ COPPER		_ EPA 7210					_ EPA 7211	_ EPA 6010		_ EPA 6020	_____
_ LEAD		_ EPA 7420					_ EPA 7421	_ EPA 6010		_ EPA 6020	_____
_ MERCURY		X EPA 7470	X EPA 7471					_ EPA 6010			_____
_ MOLYBDENUM		_ EPA 7480					_ EPA 7481	_ EPA 6010		_ EPA 6020	_____
_ NICKEL		_ EPA 7520					_ EPA 7521	_ EPA 6010		_ EPA 6020	_____
_ SELENIUM		_ EPA 7741	_ EPA 7742				_ EPA 7740	_ EPA 6010		_ EPA 6020	_____
_ ZINC		_ EPA 7950					_ EPA 7951	_ EPA 6010		_ EPA 6020	_____

LABORATORY:

CHEMISTRY -- CLEAN WATER ACT

GENERAL CHEMISTRY

										OTHER METHODS
			(ION CHROMATOGRAPHY)							
_	BROMIDE	_	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	CHLORIDE	X	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	FLUORIDE	X	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	NITRATE	X	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	NITRITE	_	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	NITRATE-NITRITE	_	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	ORTHOPHOSPHATE	X	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	SULFATE	X	EPA 300.0	_	SM4110B	_	D4327-91		_ AOAC 993.30	
_	BROMATE	_	EPA 300.0							
_	CHLORATE	_	EPA 300.0							
_	CHLORITE	_	EPA 300.0							
_	CHROMIUM(VI)	_	EPA 218.6	_	SM3500Cr E	_	D5257-93		_ AOAC 993.23	
					(COLORIMETRIC)					
_	ALUMINUM			_	SM3500Al D					
_	ARSENIC	_	EPA 206.4	_	SM3500As C	_	D2972-93A	_ I-3060-85		
_	BERYLLIUM			_	SM3500Be D					
_	CADMIUM			_	SM3500Cd D					
_	CHROMIUM			_	SM3500Cr D					
_	CHROMIUM(VI)			_	SM3500Cr D	_	D1687-92A	_ I-1230-85		
_	COPPER			_	SM3500Cu D					
_	COPPER			_	SM3500Cu E				_ HACH8506	
_	IRON			_	SM3500Fe D	_	D1068-90D		_ HACH8008	
_	LEAD			_	SM3500Pb D					
_	MANGANESE			_	SM3500Mn D	_	AOAC 920.203		_ HACH8034	
_	NICKEL			_	SM3500Ni D					
_	VANADIUM			_	SM3500V D					
_	ZINC			_	SM3500Zn E					
_	ZINC			_	SM3500Zn F				_ HACH8009	
_	ALKALINITY	_	EPA 310.2					_ I-2030-85		
_	AMMONIA	_	EPA 350.1	_	SM4500NH3 H			_ I-4523-85		
_	AMMONIA	_	EPA 350.2	_	SM4500NH3 C	_	D1426-93A	_ I-3520-85	_ AOAC 973.49	
_	BORON	_	EPA 212.3	_	SM4500B B			_ I-3112-85		
_	COD	_	EPA 410.4	_	SM5220D	_	D1252-88B	_ I-3561-85	X HACH8000	
_	CHLORIDE	_	EPA 325.1					_ I-1187-85		
_	CHLORIDE	_	EPA 325.2	_	SM4500Cl- E			_ I-2187-85		
_	CHLORINE	_	EPA 330.5	_	SM4500CL G					
_	CHLOROPHYLLS			_	SM10200H					
_	COLOR	_	EPA 110.1	_	SM2120E				_ NCPI Bul. 253	
_	COLOR	_	EPA 110.2	_	SM2120B			_ I-1250-85		
_	COLOR	_	EPA 110.3	_	SM2120C					
_	TOTAL CYANIDE	_	EPA 335.2	_	SM4500CN- E	_	D2036-91A	_ I-3300-85	_ ANSI photo.	
_	TOTAL CYANIDE	_	EPA 335.3	_	EPA 335.4					
_	AMENABLE CYANIDE	_	EPA 335.1	_	SM4500CN- G	_	D2036-91B			
_	FLUORIDE	_	EPA 340.1	_	SM4500F- D	_	D1179-93A			
_	FLUORIDE	_	EPA 340.3	_	SM4500F- E					
_	HARDNESS	_	EPA 130.1							
_	KJELDAHL NITROGEN	_	EPA 351.1					_ I-4551-78		
_	KJELDAHL NITROGEN	_	EPA 351.2			_	D3590-89B			
_	KJELDAHL NITROGEN	_	EPA 351.3	_	SM4500NH3 C	_	D3590-89A		_ PAI-DK02	
_	KJELDAHL NITROGEN								_ PAI-DK03	
_	NITRATE	_	EPA 352.1	_	SM419D (14)			_ ANSI Photo.	_ AOAC 973.50	

LABORATORY:

CHEMISTRY -- CLEAN WATER ACT

GENERAL CHEMISTRY

		(COLORIMETRIC)				OTHER METHODS
_ NITRATE-NITRITE	_ EPA 353.1	_ SM4500NO3- H				
_ NITRATE	_ EPA 353.1	_ SM4500NO3- H				
_ NITRATE-NITRITE	X EPA 353.2	_ SM4500NO3- F	_ D3867-90A	_ I-4545-85		
_ NITRATE	_ EPA 353.2	_ SM4500NO3- F	_ D3867-90A	_ I-4545-85		
_ NITRITE	_ EPA 353.2	_ SM4500NO3- F	_ D3867-90A	_ I-4545-85	_ SM4500NO3- E	
_ NITRATE-NITRITE	_ EPA 353.3	_ SM4500NO3- E	_ D3867-90B			
_ NITRATE	_ EPA 353.3	_ SM4500NO3- E	_ D3867-90B			
_ NITRITE	_ EPA 354.1	_ SM4500NO2- B	_ D3867-90B	_ I-4540-85	_ HACH8507	
_ TRPH	X EPA 418.1					
_ TOC	_ EPA 415.1	_ SM5310B	_ D2579-93A		_ AOAC 973.47	
_ TOC		X SM5310C	_ D2579-93B	_ SM5310D		
_ ORTHOPHOSPHATE	_ EPA 365.1	_ SM4500P F		_ I-4601-85	_ AOAC 973.56	
_ TOTAL PHOSPHORUS	_ EPA 365.1	_ SM4500P F		_ I-4600-85	_ AOAC 973.56	
_ ORTHOPHOSPHATE	_ EPA 365.2	_ SM4500P E	_ D515-88A		_ AOAC 973.55	
_ TOTAL PHOSPHORUS	_ EPA 365.2	_ SM4500P E	_ D515-88A		_ AOAC 973.55	
_ ORTHOPHOSPHATE	_ EPA 365.3					
_ TOTAL PHOSPHORUS	_ EPA 365.3					
_ TOTAL PHOSPHORUS	_ EPA 365.4		_ D515-88B			
_ TOTAL PHENOLS	_ EPA 420.1			_ EPA 420.2	_ EPA 420.4	
_ DISSOLVED SILICA	_ EPA 370.1	_ SM4500SI D	_ D859-88	_ I-1700-85	_ I-2700-85	
_ SULFATE	_ EPA 375.1					
_ SULFATE	_ EPA 375.2					
_ SULFIDE	_ EPA 376.2	_ SM4500S= D				
_ SURFACTANTS	_ EPA 425.1	_ SM5540C	_ D2330-88			
_ TANNIN & LIGNIN		_ SM5550B				
_ DITHIOCARBAMATES	_ EPA 630					
		(TURBIDIMETRIC)				
_ SULFATE	_ EPA 375.4	_ SM426C (15)	_ D516-90			
_ TURBIDITY	_ EPA 180.1	_ SM2130B	_ D1889-88A	_ I-3860-85		
		(ELECTROMETRIC)				
_ AMMONIA	_ EPA 350.2	_ SM4500NH3 F	_ D1426-93B			
_ AMMONIA	_ EPA 350.3	X SM4500NH3 G		_ TECH. 379-75WE		
_ ARSENIC	_ EPA 7063					
_ BOD	_ EPA 405.1	X SM5210B	_ ANSI photo.	_ I-1578-85	_ AOAC 973.44	
_ CARBONACEOUS BOD		X SM5210B				
_ CADMIUM			_ D3557-90C			
_ CHLORINE					_ ORION 97-70	
_ CYANIDE					_ OIA-1677	
_ FLUORIDE	_ EPA 340.2	X SM4500F- C	_ D1179-93B	_ I-4327-85		
_ pH	_ EPA 150.1	X SM4500H+ B	_ D1293-84A	_ I-1586-85	_ AOAC 973.41	
_ pH	_ EPA 150.2		_ D1293-84B	_ TECH. 378-75WA		
_ KJELDAHL NITROGEN	_ EPA 351.3	_ SM4500NH3 F				
_ KJELDAHL NITROGEN	_ EPA 351.4	_ SM4500NH3 G	_ D3590-89A			
_ LEAD			_ D3559-90C			
_ MERCURY	_ EPA 7472					
_ AOX	_ EPA 1650					
_ TOX		_ SM5320B				
_ DISSOLVED OXYGEN	_ EPA 360.1	_ SM4500O G	_ D888-92B	_ I-1576-78		
_ SALINITY		_ SM2520B				
_ S.O.U.R.		_ SM2710B				
_ CONDUCTIVITY	_ EPA 120.1	X SM2510B	_ D1125-91A	_ I-1780-85	_ AOAC 973.40	

LABORATORY:

CHEMISTRY -- CLEAN WATER ACT

GENERAL CHEMISTRY

							OTHER METHODS
		(TITRIMETRIC)					
_ ACIDITY	_ EPA 305.1	_ SM2310B	_ D1067-92				
_ ALKALINITY	_ EPA 310.1	X SM2320B	_ D1067-92	_ I-1030-85	_ AOAC 973.43		
_ AMMONIA	_ EPA 350.2	_ SM4500NH3 E					
_ BROMIDE	_ EPA 320.1		_ D1246-88C	_ I-1125-85			
_ CALCIUM	_ EPA 215.2	_ SM3500Ca D	_ D511-93A				
_ COD	_ EPA 410.1	_ SM5220B	_ D1252-88A	_ I-3560-85	_ AOAC 973.46		
_ COD	_ EPA 410.2	_ SM5220C		_ I-3562-85	_ ANSI Photo.		
_ COD	_ EPA 410.3						
_ CHLORIDE		X SM4500Cl- B	_ D512-89B	_ I-1183-85			
_ CHLORIDE	_ EPA 325.3	_ SM4500Cl- C	_ D512-89A	_ I-1184-85	_ AOAC 973.51		
_ CHLORINE	_ EPA 330.1	_ SM3500CL D	_ D1253-92		_ SM3500CL E		
_ CHLORINE	_ EPA 330.2	_ SM4500CL C					
_ CHLORINE	_ EPA 330.3	_ SM4500CL B					
_ CHLORINE	_ EPA 330.4	_ SM4500CL F					
_ CYANIDE	_ EPA 335.2	_ SM4500CN- D			_ ANSI Photo.		SM 4500CN-C
_ HARDNESS	_ EPA 130.2	_ SM2340C	_ D1126-86	_ I-1338-85	_ AOAC 973.52B		
_ KJELDAHL NITROGEN	_ EPA 351.3	_ SM4500NH3 E	_ D3590-89A	_ PAI-DK01	_ AOAC 973.48		
_ DISSOLVED OXYGEN	_ EPA 360.2	_ SM4500O C	_ D888-92A	_ I-1575-78	_ AOAC 973.45B		
_ SULFIDE	_ EPA 376.1	_ SM4500S= E		_ I-3840-85			
_ SULFITE	_ EPA 377.1	_ SM4500SO3= B					
		(GRAVIMETRIC)					
_ MAGNESIUM		_ SM3500Mg D					
_ OIL & GREASE	_ EPA 413.1	_ SM5520B					
_ OIL & GREASE	X EPA 1664						
_ PETROLEUM HC's	X EPA 1664						
_ POTASSIUM		_ SM317B (14)					
_ FILTERABLE RESIDUE	_ EPA 160.1	X SM2540C		_ I-1750-85			
_ NONFILTERABLE RESIDUE	X EPA 160.2	_ SM2540D		_ I-3765-85			
_ TOTAL RESIDUE	_ EPA 160.3	_ SM2540B		_ I-3750-85			
_ VOLATILE RESIDUE	_ EPA 160.4	_ SM2540E (17)		_ I-3753-85			
_ SETTLEABLE RESIDUE	_ EPA 160.5	_ SM2540F					
_ TOT./FIXED/VOL. SOLIDS		X SM2540G					
_ SULFATE	_ EPA 375.3	_ SM4500SO4= C	_ SM4500SO4= D		_ AOAC 925.54		SM 4500 $SO_4^{=}$ E
		(MISCELLANEOUS)					
_ SALINITY		_ SM2520C					
_ TEMPERATURE	_ EPA 170.1	_ SM2550B					
		(CALCULATIONS)					
_ CORROSIVITY		_ SM2330B					
_ HARDNESS		X SM2340B					
_ ORGANIC NITROGEN	_ KJELDAHL NITROGEN minus AMMONIA						
_ UN-IONIZED AMMONIA	_ DEP SOP 10-3-83						

LABORATORY:

CHEMISTRY -- CLEAN WATER ACT

VOLATILE ORGANICS

	(GC)			(GC/MS)		OTHER METHODS
_ BROMODICHLOROMETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ BROMOFORM	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ BROMOMETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CARBON TETRACHLORIDE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CHLOROBENZENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 2-CHLOROETHYL VINYL ETHER	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CHLOROFORM	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CHLOROMETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ DIBROMOCHLOROMETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,2-DICHLOROBENZENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,3-DICHLOROBENZENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,4-DICHLOROBENZENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ DICHLORODIFLUOROMETHANE	_ EPA 601	_ SM6230B				
_ 1,1-DICHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,2-DICHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,1-DICHLOROETHENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ trans-1,2-DICHLOROETHENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,2-DICHLOROPROPANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ cis-1,3-DICHLOROPROPENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ trans-1,3-DICHLOROPROPENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ METHYLENE CHLORIDE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,1,2,2-TETRACHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ TETRACHLOROETHENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,1,1-TRICHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,1,2-TRICHLOROETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ TRICHLOROETHENE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ TRICHLOROFLUOROMETHANE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ VINTL CHLORIDE	_ EPA 601	_ SM6230B	X EPA 624	_ SM6210B	_ EPA 1624	
_ BENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ CHLOROBENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,2-DICHLOROBENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,3-DICHLOROBENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ 1,4-DICHLOROBENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ ETHYLBENZENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ TOLUENE	X EPA 602	_ SM6220B	X EPA 624	_ SM6210B	_ EPA 1624	
_ TOTAL XYLENES	X EPA 602		X EPA 624		_ EPA 1624	
_ ACROLEIN	_ EPA 603		X EPA 624		_ EPA 1624	
_ ACRYLONITRILE	_ EPA 603		X EPA 624		_ EPA 1624	
_ ACETONITRILE	_ EPA 1671		_ EPA 1666			
_ n-AMYL ACETATE			_ EPA 1666			
_ n-AMYL ALCOHOL			_ EPA 1666			
_ n-BUTYL ACETATE			_ EPA 1666			
_ tert-BUTYL ALCOHOL			_ EPA 1666			
_ DIETHYLAMINE	_ EPA 1671		_ EPA 1666			
_ DIMETHYL SULFOXIDE	_ EPA 1671		_ EPA 1666			
_ ETHANOL	_ EPA 1671		_ EPA 1666			
_ ETHYL ACETATE			_ EPA 1666			
_ n-HEPTANE			_ EPA 1666			
_ n-HEXANE			_ EPA 1666			
_ ISOBUTYRALDEHYDE			_ EPA 1666			
_ ISOPROPANOL			_ EPA 1666			
_ ISOPROPYL ACETATE			_ EPA 1666			

LABORATORY:

CHEMISTRY – CLEAN WATER ACT

EXTRACTABLE ORGANICS

	(GC or HPLC)		(GC/MS)		OTHER METHOD
_ ACENAPHTHENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ ACENAPHTHYLENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ ANTHRACENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BENZ(a)ANTHRACENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BENZO(a)PYRENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BENZO(b)FLUORANTHENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BENZO(k)FLUORANTHENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BENZO(g,h,i)PERYLENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ CHRYSENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ DIBENZ(a,h)ANTHRACENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ FLUORANTHENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ FLUORENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ INDENO(1,2,3-c,d)PYRENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ NAPHTHALENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ PHENANTHRENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ PYRENE	X EPA 610	_ SM6440B	_ EPA 625	_ SM6410B	_ EPA 1625 _____

	(GC)		(GC/MS)		
_ BIS(2-CHLOROETHOXY)METHANE	_ EPA 611		_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BIS(2-CHLOROETHYL) ETHER	_ EPA 611		_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ BIS(2-CHLOROISOPROPYL) ETHER	_ EPA 611		_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ 4-BROMOPHENYL PHENYL ETHER	_ EPA 611		_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ 4-CHLOROPHENYL PHENYL ETHER	_ EPA 611		_ EPA 625	_ SM6410B	_ EPA 1625 _____
_ ELEMENTAL PHOSPHORUS	_ J Chrom v.47, p.421				_____

	(GC/MS)			(GC/MS)
_ 4-CHLOROPHENOL	_ EPA 1653	_ 2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	_ EPA 613	_ EPA 1613
_ 2,4-DICHLOROPHENOL	_ EPA 1653	_ 1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ 2,6-DICHLOROPHENOL	_ EPA 1653	_ 1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ 2,4,5-TRICHLOROPHENOL	_ EPA 1653	_ 1,2,3,6,7,8-HEXACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ 2,4,6-TRICHLOROPHENOL	_ EPA 1653	_ 1,2,3,7,8,9-HEXACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ 2,3,4,6-TETRACHLOROPHENOL	_ EPA 1653	_ 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ PENTACHLOROPHENOL	_ EPA 1653	_ OCTACHLORODIBENZO-p-DIOXIN		_ EPA 1613
_ 4-CHLOROGUAIACOL	_ EPA 1653	_ 2,3,7,8-TETRACHLORODIBENZOFURAN		_ EPA 1613
_ 3,4-DICHLOROGUAIACOL	_ EPA 1653	_ 1,2,3,7,8-PENTACHLORODIBENZOFURAN		_ EPA 1613
_ 4,5-DICHLOROGUAIACOL	_ EPA 1653	_ 2,3,4,7,8-PENTACHLORODIBENZOFURAN		_ EPA 1613
_ 4,6-DICHLOROGUAIACOL	_ EPA 1653	_ 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN		_ EPA 1613
_ 3,4,5-TRICHLOROGUAIACOL	_ EPA 1653	_ 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN		_ EPA 1613
_ 3,4,6-TRICHLOROGUAIACOL	_ EPA 1653	_ 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN		_ EPA 1613
_ 4,5,6-TRICHLOROGUAIACOL	_ EPA 1653	_ 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN		_ EPA 1613
_ TETRACHLOROGUAIACOL	_ EPA 1653	_ 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN		_ EPA 1613
_ 4-CHLOROCATECHOL	_ EPA 1653	_ 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN		_ EPA 1613
_ 3,4-DICHLOROCATECHOL	_ EPA 1653	_ OCTACHLORODIBENZOFURAN		_ EPA 1613
_ 3,6-DICHLOROCATECHOL	_ EPA 1653			
_ 4,5-DICHLOROCATECHOL	_ EPA 1653			
_ 3,4,5-TRICHLOROCATECHOL	_ EPA 1653	_ ISOBUTYRALDEHYDE		_ EPA 1667
_ 3,4,6-TRICHLOROCATECHOL	_ EPA 1653			
_ TETRACHLOROCATECHOL	_ EPA 1653			
_ 5-CHLOROVANILLIN	_ EPA 1653			
_ 6-CHLOROVANILLIN	_ EPA 1653			
_ 5,6-DICHLOROVANILLIN	_ EPA 1653			
_ 2-CHLOROSYRINGALDEHYDE	_ EPA 1653			
_ 2,6-DICHLOROSYRINGALDEHYDE	_ EPA 1653			
_ TRICHLOROSYRINGOL	_ EPA 1653			

LABORATORY:

CHEMISTRY – RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

METALS

	(AA)			(ICP)	(ICP/MS)	OTHER METHODS
_ ALUMINUM	_ EPA 7020			X EPA 6010	X EPA 6020	
_ ANTIMONY	_ EPA 7040	_ EPA 7041	_ EPA 7062	_ EPA 6010	X EPA 6020	
_ ARSENIC	_ EPA 7061	_ EPA 7060	_ EPA 7062	_ EPA 6010	X EPA 6020	
_ BARIUM	_ EPA 7080	_ EPA 7081		X EPA 6010	X EPA 6020	
_ BERYLLIUM	_ EPA 7090	_ EPA 7091		_ EPA 6010	X EPA 6020	
_ BORON				X EPA 6010		
_ CADMIUM	_ EPA 7130	_ EPA 7131		_ EPA 6010	X EPA 6020	
_ CALCIUM	_ EPA 7140			X EPA 6010		
_ CHROMIUM	_ EPA 7190	_ EPA 7191		_ EPA 6010	X EPA 6020	
_ CHROMIUM(VI)	_ EPA 7195	_ EPA 7197				
_ COBALT	_ EPA 7200	_ EPA 7201		_ EPA 6010	X EPA 6020	
_ COPPER	_ EPA 7210	_ EPA 7211		_ EPA 6010	X EPA 6020	
_ IRON	_ EPA 7380	_ EPA 7381		X EPA 6010		
_ LEAD	_ EPA 7420	_ EPA 7421		_ EPA 6010	X EPA 6020	
_ LITHIUM	_ EPA 7430			X EPA 6010		
_ MAGNESIUM	_ EPA 7450			X EPA 6010		
_ MANGANESE	_ EPA 7460	_ EPA 7461		X EPA 6010	X EPA 6020	
_ MERCURY	X EPA 7470	X EPA 7471		_ EPA 6010		
_ MOLYBDENUM	_ EPA 7480	_ EPA 7481		X EPA 6010		
_ NICKEL	_ EPA 7520	_ EPA 7521		_ EPA 6010	X EPA 6020	
_ OSMIUM	_ EPA 7550					
_ TOTAL PHOSPHORUS				X EPA 6010		
_ POTASSIUM	_ EPA 7610			X EPA 6010		
_ SELENIUM	_ EPA 7741	_ EPA 7740	_ EPA 7742	_ EPA 6010		EPA 6020
_ SILICA				X EPA 6010		
_ SILVER	_ EPA 7760	_ EPA 7761		_ EPA 6010	X EPA 6020	
_ SODIUM	_ EPA 7770			X EPA 6010		
_ STRONTIUM	_ EPA 7780			X EPA 6010		
_ THALLIUM	_ EPA 7840	_ EPA 7841		_ EPA 6010	X EPA 6020	
_ TIN	_ EPA 7870			_ EPA 6010		
_ VANADIUM	_ EPA 7910	_ EPA 7911		_ EPA 6010		EPA 6020
_ ZINC	_ EPA 7950	_ EPA 7951		_ EPA 6010	X EPA 6020	

GENERAL CHEMISTRY

	OTHER METHODS (ELECTROMETRIC)			OTHER METHODS (COLORIMETRIC)	
_ ARSENIC	_ EPA 7063		_ CHROMIUM(VI)	_ EPA 7196	
_ CHROMIUM(VI)	_ EPA 7198		_ TRPH	_ EPA 8440	
_ MERCURY	_ EPA 7472		_ FORMALDEHYDE	_ EPA 8520	
_ TOX	X EPA 9020		_ TOT. CYANIDE	_ EPA 9014	
_ POX	_ EPA 9021		_ AMEN. CYANIDE	_ EPA 9014	
_ TOX	_ EPA 9022		_ TOT. CYANIDE	_ EPA 9012	
_ EOX	X EPA 9023		_ AMEN. CYANIDE	_ EPA 9012	
_ pH	_ EPA 9040		_ EXT. CYANIDE	_ EPA 9013/9010	
_ pH	_ EPA 9045		_ SULFATE	_ EPA 9035	
_ CONDUCTIVITY	_ EPA 9050		_ SULFATE	_ EPA 9036	
_ CHLORINE	_ EPA 9076		_ TOC	_ EPA 9060	
_ NITRATE	_ EPA 9210		_ TOT. PHENOLS	_ EPA 9065	
_ BROMIDE	_ EPA 9211		_ TOT. PHENOLS	_ EPA 9066	
_ CHLORIDE	_ EPA 9212		_ TOT. PHENOLS	_ EPA 9067	
_ CYANIDE	_ EPA 9213		_ NITRATE	_ EPA 9200	
~~_ FLUORIDE~~	~~_ EPA 9214~~		~~_ CHLORIDE~~	~~_ EPA 9250~~	
_ SULFIDE	_ EPA 9030/9215		_ CHLORIDE	_ EPA 9251	

LABORATORY:

CHEMISTRY -- RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

GENERAL CHEMISTRY

		OTHER METHODS (ION CHROMATOGRAPHY)	
_	CHROMIUM(VI)	_ EPA 7199	_____
_	BROMIDE	X EPA 9056	_____
_	CHLORIDE	X EPA 9056	_____
_	FLUORIDE	X EPA 9056	_____
_	NITRATE	X EPA 9056	_____
_	NITRITE	X EPA 9056	_____
_	NITRATE-NITRITE	X EPA 9056	_____
_	ORTHOPHOSPHATE	X EPA 9056	_____
_	SULFATE	X EPA 9056	_____
_	CHLORIDE	_ EPA 9057	_____

		OTHER METHODS (TITRIMETRIC)	
_	CYANIDE	_ EPA 9014	_____
_	TOTAL SULFIDE	_ EPA 9030/9034	_____
_	PURG. SULFIDE	_ EPA 9031	_____
_	CHLORINE	_ EPA 9077	_____
_	CHLORIDE	_ EPA 9252	_____
_	CHLORIDE	_ EPA 9253	_____
		(MISCELLANEOUS)	
_	SULFATE	_ EPA 9038	_____
_	pH	_ EPA 9041	_____
_	OIL & GREASE	_ EPA 9070	_____
_	OIL & GREASE	X EPA 9071	_____
_	CHLORINE	_ EPA 9075	_____

(CHARACTERISTICS)

			OTHER METHODS
_	IGNITABILITY	X EPA 1010	_____
_	IGNITABILITY	_ EPA 1020	_____
_	IGNITABILITY	_ EPA 1030	_____
_	CORROSIVITY	_ EPA 1110	_____
_	DERMAL CORROSION	_ EPA 1120	_____
_	EP-TOX EXTRACTION	_ EPA 1310	_____
_	TOXICITY CHARACTERISTIC LEACHING PROCEDURE	X EPA 1311	_____
_	SYNTHETIC PRECIPITATION LEACHING PROCEDURE	X EPA 1312	_____
_	MULTIPLE EXTRACTION PROCEDURE	_ EPA 1320	_____
_	MOBILE METAL CONCENTRATION IN OILY WASTE	_ EPA 1330	_____
_	CORROSIVITY (pH)	X EPA 9040	_____
_	REACTIVE CYANIDE	X Sec. 7.3 SW-846	_____
_	REACTIVE SULFIDE	X Sec. 7.3 SW-846	_____
_	CATION EXCHANGE CAPACITY	_ EPA 9080	_____
_	CATION EXCHANGE CAPACITY	_ EPA 9081	_____
_	COMPATIBILITY TEST	_ EPA 9090	_____
_	PAINT FILTER LIQUIDS TEST	X EPA 9095	_____
_	LIQUID RELEASE TEST	_ EPA 9096	_____
_	SATURATED HYDRAULIC CONDUCTIVITY	_ EPA 9100	_____
_	SATURATED LEACHATE CONDUCTIVITY	_ EPA 9100	_____
_	INTRINSIC PERMEABILITY	_ EPA 9100	_____

LABORATORY:

CHEMISTRY – RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

VOLATILE ORGANICS

		OTHER METHODS		
	(GC)	(GC/MS)		
_ 1,2-DIBROMOETHANE (EDB)	_ EPA 8011			
_ 1,2-DIBROMO-3-CHLOROPROPANE	_ EPA 8011			
_ ACETONE	_ EPA 8015	X EPA 8260		
_ ACETONITRILE	_ EPA 8015	X EPA 8260		
_ ACROLEIN	_ EPA 8015	X EPA 8260		
_ ACRYLONTRILE	_ EPA 8015	X EPA 8260		
_ ALLYL ALCOLHOL	_ EPA 8015	X EPA 8260		
_ n-BUTYL ALCOHOL	_ EPA 8015	X EPA 8260		
_ tert-BUTYL ALCOHOL	_ EPA 8015	X EPA 8260		
_ CROTONALDEHYDE	_ EPA 8015	X EPA 8260		
_ DIETHYL ETHER	_ EPA 8015	X EPA 8260		
_ 1,4-DIOXANE	_ EPA 8015	X EPA 8260		
_ ETHANOL	_ EPA 8015	X EPA 8260		
_ ETHYL ACETATE	_ EPA 8015	X EPA 8260		
_ ETHYLENE GLYCOL	_ EPA 8015			
_ ETHYLENE OXIDE	_ EPA 8015	X EPA 8260		
_ 2-HEXANONE		X EPA 8260		
_ ISOBUTYL ALCOHOL	_ EPA 8015	X EPA 8260		
_ ISOPROPYL ALCOHOL	_ EPA 8015	X EPA 8260		
_ METHANOL	_ EPA 8015	X EPA 8260		
_ METHYL ETHYL KETONE	_ EPA 8015	X EPA 8260		
_ METHYL ISOBUTYL KETONE	_ EPA 8015	X EPA 8260		
_ N-NITROSODI-n-BUTYLAMINE	_ EPA 8015	X EPA 8260		
_ PARALDEHYDE	_ EPA 8015	X EPA 8260		
_ 2-PENTANONE	_ EPA 8015	X EPA 8260		
_ 2-PICOLINE	_ EPA 8015	X EPA 8260		
_ n-PROPANOL	_ EPA 8015	X EPA 8260		
_ PROPIONITRILE	_ EPA 8015	X EPA 8260		
_ PYRIDINE	_ EPA 8015	X EPA 8260		
_ o-TOLUIDINE	_ EPA 8015	X EPA 8260		
	(GC)	(HPLC)		
_ ACROLEIN		_ EPA 8316		
_ ACRYLONITRILE	_ EPA 8031	_ EPA 8316		
_ ACRYLAMIDE	_ EPA 8032	_ EPA 8316		
_ ACETONITRILE	_ EPA 8033			

		OTHER METHODS	
	(GC)	(GC/MS)	
_ ALLYL CHLORIDE	_ EPA 8021	X EPA 8260	
_ BENZENE	X EPA 8021	X EPA 8260	
_ BENZYL CHLORIDE	_ EPA 8021	X EPA 8260	
_ BIS(2-CHLOROISOPROPYL) ETHER	_ EPA 8021		
_ BROMOACETONE	_ EPA 8021	_ EPA 8260	
_ BROMOBENZENE	X EPA 8021	X EPA 8260	
_ BROMOCHLOROMETHANE	X EPA 8021	X EPA 8260	
_ BROMODICHLOROMETHANE	X EPA 8021	X EPA 8260	
_ BROMOFORM	X EPA 8021	X EPA 8260	
_ BROMOMETHANE	X EPA 8021	X EPA 8260	
_ n-BUTYLBENZENE	X EPA 8021	X EPA 8260	
_ sec-BUTYLBENZENE	X EPA 8021	X EPA 8260	
_ tert-BUTYLBENZENE	X EPA 8021	X EPA 8260	
_ CARBON TETRACHLORIDE	X EPA 8021	X EPA 8260	
_ CHLOROBENZENE	X EPA 8021	X EPA 8260	
_ CHLOROETHANE	X EPA 8021	X EPA 8260	
_ 2-CHLOROETHANOL	_ EPA 8021	_ EPA 8260	
_ 2-CHLOROETHYL VINYL ETHER	_ EPA 8021	X EPA 8260	
_ CHLOROFORM	X EPA 8021	X EPA 8260	
_ CHLOROMETHANE	X EPA 8021	X EPA 8260	
_ CHLOROMETHYL METHYL ETHER	_ EPA 8021		
_ CHLOROPRENE	_ EPA 8021	_ EPA 8260	
_ 2-CHLOROTOLUENE	X EPA 8021	X EPA 8260	
_ 4-CHLOROTOLUENE	X EPA 8021	X EPA 8260	
_ DIBROMOCHLOROMETHANE	X EPA 8021	X EPA 8260	
_ 1,2-DIBROMO-3-CHLOROPROPANE	X EPA 8021	X EPA 8260	
_ 1,2-DIBROMOETHANE (EDB)	X EPA 8021	X EPA 8260	
_ DIBROMOMETHANE	X EPA 8021	X EPA 8260	
_ 1,2-DICHLOROBENZENE	X EPA 8021	X EPA 8260	
_ 1,3-DICHLOROBENZENE	X EPA 8021	X EPA 8260	
_ 1,4-DICHLOROBENZENE	X EPA 8021	X EPA 8260	
_ DICHLORODIFLUOROMETHANE	X EPA 8021	X EPA 8260	
_ 1,1-DICHLOROETHANE	X EPA 8021	X EPA 8260	
_ 1,2-DICHLOROETHANE	X EPA 8021	X EPA 8260	
_ 1,1-DICHLOROETHENE	X EPA 8021	X EPA 8260	
_ cis-1,2-DICHLOROETHENE	X EPA 8021	X EPA 8260	
_ trans-1,2-DICHLOROETHENE	X EPA 8021	X EPA 8260	
_ 1,2-DICHLOROPROPANE	X EPA 8021	X EPA 8260	

LABORATORY:

CHEMISTRY – RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

VOLATILE ORGANICS

	OTHER METHODS		
	(GC)	(GC/MS)	
_ 1,3-DICHLOROPROPANE	X EPA 8021	X EPA 8260	_____
_ 2,2-DICHLOROPROPANE	X EPA 8021	X EPA 8260	_____
_ 1,1-DICHLOROPROPENE	X EPA 8021	X EPA 8260	_____
_ cis-1,3-DICHLOROPROPENE	X EPA 8021	X EPA 8260	_____
_ trans-1,3-DICHLOROPROPENE	X EPA 8021	X EPA 8260	_____
_ 1,3-DICHLORO-2-PROPANOL	_ EPA 8021	X EPA 8260	_____
_ EPICHLOROHYDRIN	_ EPA 8021	X EPA 8260	_____
_ ETHYLBENZENE	X EPA 8021	X EPA 8260	_____
_ HEXACHLOROBUTADIENE	X EPA 8021	X EPA 8260	_____
_ ISOPROPYLBENZENE	X EPA 8021	X EPA 8260	_____
_ 4-ISOPROPYLTOLUENE	X EPA 8021	X EPA 8260	_____
_ METHYL tert-BUTYL ETHER (MTBE)	X EPA 8021	X EPA 8260	_____
_ METHYLENE CHLORIDE	X EPA 8021	X EPA 8260	_____
_ NAPHTHALENE	X EPA 8021	X EPA 8260	_____
_ n-PROPYLBENZENE	X EPA 8021	X EPA 8260	_____
_ STYRENE	X EPA 8021	X EPA 8260	_____
_ 1,1,1,2-TETRACHLOROETHANE	X EPA 8021	X EPA 8260	_____
_ 1,1,2,2-TETRACHLOROETHANE	X EPA 8021	X EPA 8260	_____
_ TETRACHLOROETHENE	X EPA 8021	X EPA 8260	_____
_ TOLUENE	X EPA 8021	X EPA 8260	_____
_ 1,2,3-TRICHLOROBENZENE	X EPA 8021	X EPA 8260	_____
_ 1,2,4-TRICHLOROBENZENE	X EPA 8021	X EPA 8260	_____
_ 1,1,1-TRICHLOROETHANE	X EPA 8021	X EPA 8260	_____
_ 1,1,2-TRICHLOROETHANE	X EPA 8021	X EPA 8260	_____
_ TRICHLOROETHENE	X EPA 8021	X EPA 8260	_____
_ TRICHLOROFLUOROMETHANE	X EPA 8021	X EPA 8260	_____
_ 1,2,3-TRICHLOROPROPANE	X EPA 8021	X EPA 8260	_____
_ 1,2,4-TRIMETHYLBENZENE	X EPA 8021	X EPA 8260	_____
_ 1,3,5-TRIMETHYLBENZENE	X EPA 8021	X EPA 8260	_____
_ VINYL CHLORIDE	X EPA 8021	X EPA 8260	_____
_ TOTAL XYLENES	X EPA 8021	X EPA 8260	_____

	OTHER METHODS	
	(GC/MS)	
_ BIS(2-CHLOROETHYL) SULFIDE	_ EPA 8260	_____
_ CARBON DISULFIDE	X EPA 8260	_____
_ CHLORAL HYDRATE	_ EPA 8260	_____
_ CHLOROACETONITRILE	_ EPA 8260	_____
_ 1-CHLOROBUTANE	_ EPA 8260	_____
_ 1-CHLOROHEXANE	X EPA 8260	_____
_ 3-CHLOROPROPIONITRILE	_ EPA 8260	_____
_ DIBROMOFLUOROMETHANE	X EPA 8260	_____
_ cis-1,4-DICHLORO-2-BUTENE	X EPA 8260	_____
_ trans-1,4-DICHLORO-2-BUTENE	X EPA 8260	_____
_ 1,2,3,4-DIEPOXYBUTANE	_ EPA 8260	_____
_ ETHYL METHACRYLATE	X EPA 8260	_____
_ HEXACHLOROETHANE	X EPA 8260	_____
_ 2-HYDROXYPROPIONITRILE	X EPA 8260	_____
_ IODOMETHANE	X EPA 8260	_____
_ MALONONITRILE	_ EPA 8260	_____
_ METHACRYLONITRILE	_ EPA 8260	_____
_ METHYL ACRYLATE	_ EPA 8260	_____
_ METHYL METHACRYLATE	_ EPA 8260	_____
_ NITROBENZENE	X EPA 8260	_____
_ 2-NITROPROPANE	X EPA 8260	_____
_ PENTACHLOROETHANE	X EPA 8260	_____
_ PENTAFLUOROBENZENE	X EPA 8260	_____
_ PROPARGYL ALCOHOL	_ EPA 8260	_____
_ b-PROPIOLACTONE	_ EPA 8260	_____
_ n-PROPYLAMINE	_ EPA 8260	_____
_ VINYL ACETATE	X EPA 8260	_____

LABORATORY:

CHEMISTRY – RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

EXTRACTABLE ORGANICS

	(GC/MS)	(HPLC)	OTHER METHODS (GC/FTIR)	
_ ACENAPHTHENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ ACENAPHTHYLENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ ANTHRACENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ BENZ(a)ANTHRACENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ BENZO(b)FLUORANTHENE	_ EPA 8275	X EPA 8310		
_ BENZO(k)FLUORANTHENE	_ EPA 8275	X EPA 8310		
_ BENZO(g,h,i)PERYLENE	_ EPA 8275	X EPA 8310		
_ BENZO(a)PYRENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ 4-BROMOPHENYL PHENYL ETHER	_ EPA 8275		_ EPA 8410	
_ 1-CHLORONAPHTHALENE	_ EPA 8275			
_ CHRYSENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ DIBENZOFURAN	_ EPA 8275		_ EPA 8410	
_ DIBENZ(a,h)ANTHRACENE	_ EPA 8275	X EPA 8310		
_ DIBENZOTHIOPHENE	_ EPA 8275			
_ FLUORANTHENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ FLUORENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ HEXACHLOROBENZENE	_ EPA 8275		_ EPA 8410	
_ INDENO(1,2,3-c,d)PYRENE	_ EPA 8275	X EPA 8310		
_ NAPHTHALENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ PHENANTHRENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ PYRENE	_ EPA 8275	X EPA 8310	_ EPA 8410	
_ 1,2,4-TRICHLOROBENZENE	_ EPA 8275		_ EPA 8410	

	(HPLC)	
_ 4-AMINO-2,6-DINITROTOLUENE	_ EPA 8330	
_ 2-AMINO-4,6-DINITROTOLUENE	_ EPA 8330	
_ 1,3-DINITROBENZENE	_ EPA 8330	
_ 2,4-DINITROTOLUENE	_ EPA 8330	
_ 2,6-DINITROTOLUENE	_ EPA 8330	
_ HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE (RDX)	_ EPA 8330	
_ METHYL-2,4,6-TRINITROPHENYLNITRAMINE (TETRYL)	_ EPA 8330	
_ NITROBENZENE	_ EPA 8330	
_ 2-NITROTOLUENE	_ EPA 8330	
_ 3-NITROTOLUENE	_ EPA 8330	
_ 4-NITROTOLUENE	_ EPA 8330	
_ OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE (HMX)	_ EPA 8330	
_ 1,3,5-TRINITROBENZENE	_ EPA 8330	
_ 2,4,6-TRINITROTOLUENE	_ EPA 8330	

	(HPLC)	
_ TETRAZENE	_ EPA 8331	
_ NITROGLYCERINE	_ EPA 8332	

(34)

OTHER METHODS

	(HPLC)	
_ ACETALDEHYDE	_ EPA 8315	
_ ACETONE	_ EPA 8315	
_ ACROLEIN	_ EPA 8315	
_ BENZALDEHYDE	_ EPA 8315	
_ BUTANAL	_ EPA 8315	
_ CROTONALDEHYDE	_ EPA 8315	
_ CYCLOHEXANONE	_ EPA 8315	
_ DECANAL	_ EPA 8315	
_ 2,5-DIMETHYLBENZALDEHYDE	_ EPA 8315	
_ FORMALDEHYDE	_ EPA 8315	
_ HEPTANAL	_ EPA 8315	
_ HEXANAL	_ EPA 8315	
_ ISOVALERALDEHYDE	_ EPA 8315	
_ NONANAL	_ EPA 8315	
_ OCTANAL	_ EPA 8315	
_ PENTANAL (VALERALDEHYDE)	_ EPA 8315	
_ PROPANAL	_ EPA 8315	
_ 1,2-TOLUALDEHYDE	_ EPA 8315	
_ 1,3-TOLUALDEHYDE	_ EPA 8315	
_ 1,4-TOLUALDEHYDE	_ EPA 8315	

	(LC/MS)	
_ DISPERSE RED 1	_ EPA 8321	
_ DISPERSE RED 5	_ EPA 8321	
_ DISPERSE RED 13	_ EPA 8321	
_ DISPERSE YELLOW 5	_ EPA 8321	
_ DISPERSE ORANGE 3	_ EPA 8321	
_ DISPERSE ORANGE 30	_ EPA 8321	
_ DISPERSE BROWN 1	_ EPA 8321	
_ SOLVENT RED 3	_ EPA 8321	
_ SOLVENT RED 23	_ EPA 8321	
_ DISPERSE BLUE 3	_ EPA 8321	
_ DISPERSE BLUE 14	_ EPA 8321	
_ DISPERSE RED 60	_ EPA 8321	
_ COUMARIN DYES	_ EPA 8321	
_ FLUOR. BRIGHTENER 61	_ EPA 8321	
_ FLUOR. BRIGHTENER 236	_ EPA 8321	
_ CAFFEINE	_ EPA 8321	
_ STRYCHNINE	_ EPA 8321	

LABORATORY:

CHEMISTRY – RESOURCE CONSERVATION & RECOVERY ACT (plus CERCLA)

EXTRACTABLE ORGANICS

	OTHER METHODS (GC/FTIR)	
_ BENZOIC ACID	_ EPA 8410	_____
_ BIS(2-CHLOROETHOXY) METHANE	_ EPA 8410	_____
_ BIS(2-CHLOROETHYL) ETHER	_ EPA 8410	_____
_ BIS(2-CHLOROISOPROPYL) ETHER	_ EPA 8410	_____
_ BIS(2-ETHYLHEXYL) PHTHALATE	_ EPA 8410	_____
_ BUTYL BENZYL PHTHALATE	_ EPA 8410	_____
_ 4-CHLOROANILINE	_ EPA 8410	_____
_ 4-CHLORO-3-METHYLPHENOL	_ EPA 8410	_____
_ 2-CHLORONAPHTHALENE	_ EPA 8410	_____
_ 2-CHLOROPHENOL	_ EPA 8410	_____
_ 4-CHLOROPHENOL	_ EPA 8410	_____
_ 4-CHLOROPHENYL PHENYL ETHER	_ EPA 8410	_____
_ DI-n-BUTYL PHTHALATE	_ EPA 8410	_____
_ 1,2-DICHLOROBENZENE	_ EPA 8410	_____
_ 1,3-DICHLOROBENZENE	_ EPA 8410	_____
_ 1,4-DICHLOROBENZENE	_ EPA 8410	_____
_ 2,4-DICHLOROPHENOL	_ EPA 8410	_____
_ DIETHYL PHTHALATE	_ EPA 8410	_____
_ DIMETHYL PHTHALATE	_ EPA 8410	_____
_ DI-n-OCTYL PHTHALATE	_ EPA 8410	_____
_ DI-n-PROPYL PHTHALATE	_ EPA 8410	_____
_ 2,4-DINITROPHENOL	_ EPA 8410	_____
_ 2,4-DINITROTOLUENE	_ EPA 8410	_____
_ 2,6-DINITROTOLUENE	_ EPA 8410	_____
_ HEXACHLOROBUTADIENE	_ EPA 8410	_____
_ HEXACHLOROCYCLOPENTADIENE	_ EPA 8410	_____
_ HEXACHLOROETHANE	_ EPA 8410	_____
_ ISOPHORONE	_ EPA 8410	_____
_ 2-METHYLNAPHTHALENE	_ EPA 8410	_____
_ 2-METHYL-4,6-DINITROPHENOL	_ EPA 8410	_____
_ 2-METHYLPHENOL	_ EPA 8410	_____
_ 4-METHYLPHENOL	_ EPA 8410	_____
_ 2-NITROANILINE	_ EPA 8410	_____
_ 3-NITROANILINE	_ EPA 8410	_____
_ 4-NITROANILINE	_ EPA 8410	_____
_ NITROBENZENE	_ EPA 8410	_____
_ 2-NITROPHENOL	_ EPA 8410	_____
_ 4-NITROPHENOL	_ EPA 8410	_____

	OTHER METHODS (GC/FTIR)	
_ N-NITROSODIMETHYLAMINE	_ EPA 8410	_____
_ N-NITROSODI-n-PROPYLAMINE	_ EPA 8410	_____
_ N-NITROSODIPHENYLAMINE	_ EPA 8410	_____
_ PENTACHLOROPHENOL	_ EPA 8410	_____
_ PHENOL	_ EPA 8410	_____
_ 2,4,5-TRICHLOROPHENOL	_ EPA 8410	_____
_ 2,4,6-TRICHLOROPHENOL	_ EPA 8410	_____
_ BIS(2-CHLOROETHYL) ETHER	_ EPA 8430	_____
_ 2-CHLOROETHANOL	_ EPA 8430	_____
_ 2-(2-CHLOROETHOXY)ETHANOL	_ EPA 8430	_____
_ DIETHYLENE GLYCOL	_ EPA 8430	_____
_ ETHYLENE GLYCOL	_ EPA 8430	_____

(GC/FID: List Method)
(Examples include FL-PRO, CA-LUFT, MA-VPH)

X TOTAL PETROLEUM HYDROCARBC	8015B or CA LUFT
X GASOLINE-RANGE ORGANICS	8015B or CA LUFT
X DIESEL-RANGE ORGANICS	8015B or CA LUFT

	(FIELD SCREENING) OTHER METHODS	
_ TOTAL CHROMATOGRAPHABLE ORGANIC MATERIAL	_ EPA 0010B	_____
_ PENTACHLOROPHENOL Immunoassay	_ EPA 4010	_____
_ PETROLEUM HYDROCARBONS Immunoassay	_ EPA 4030	_____
_ POLYNUCLEAR AROMATICS Immunoassay	_ EPA 4035	_____
_ TRINITROTOLUENE (TNT) Immunoassay	_ EPA 4050	_____
_ RDX Immunoassay	_ EPA 4051	_____
_ TNT Screen	_ EPA 8515	_____

LABO _ORY:

RADIOCHEMISTRY

SAFE DRINKING WATER ACT

								OTHER METHODS
_ GROSS ALPHA	X EPA 900.0	_ EPA 600/4-75-008,p.1	_ SM7110B		_ R-1120-76		EPA 00-01	
_ GROSS ALPHA			_ SM7110C				_ EPA 00-02	
_ GROSS BETA	X EPA 900.0	_ EPA 600/4-75-008,p.1	_ SM7110B		_ R-1120-76		_ EPA 00-01	
_ TOTAL ALPHA RADIUM	X EPA 903.0	_ EPA 600/4-75-008,p.13	_ SM7500Ra B	_ D2460-90				
_ RADIUM-226	X EPA 903.0	_ EPA 600/4-75-008,p.13	_ SM7500Ra B	_ D2460-90	_ R-1140-76		_ EPA Ra-03	
_ RADIUM-226	_ EPA 903.1	_ EPA 600/4-75-008,p.16	_ SM7500Ra C	_ D3454-91	_ R-1141-76	_ DOE Ra-05	_ EPA Ra-03	
_ RADIUM-228	X EPA 904.0	_ EPA 600/4-75-008,p.24	_ SM7500Ra D		_ R-1142-76		_ EPA Ra-04	
							_ EPA Ra-05	
_ URANIUM	_ EPA 908.0							
_ URANIUM	X EPA 908.1		_ SM7500U B		_ R-1180-76			EPA 200.8
_ URANIUM			_ SM7500U C (17)	_ D2907-91	_ R-1181-76	_ DOE U-04		
_ URANIUM			_ SM7500U C (18)	_ D3972-90	_ R-1182-76	_ DOE U-02	_ EPA 00-07	
				_ D5174-91				
_ RADIOACTIVE CESIUM	_ EPA 901.0	_ EPA 600/4-75-008,p.4	_ SM7500Cs B	_ D2459-72	_ R-1111-76			
_ RADIOACTIVE CESIUM	_ EPA 901.1		_ SM7120	_ D3649-91	_ R-1110-76	_ DOE 4.5.2.3		
_	_ EPA 901.1		_ SM7120	_ D3649-91	_ R-1110-76	_ DOE 4.5.2.3		
_ RADIOACTIVE IODINE	_ EPA 901.1		_ SM7120	_ D3649-91	_ R-1110-76	_ DOE 4.5.2.3		
_ RADIOACTIVE IODINE	_ EPA 902.0	_ EPA 600/4-75-008,p.6	_ SM7500I B					
_ RADIOACTIVE IODINE			_ SM7500I C	_ D4785-88				
_ RADIOACTIVE IODINE		_ EPA 600/4-75-008,p.9	_ SM7500I D					
_ STRONTIUM-89	_ EPA 905.0	_ EPA 600/4-75-008,p.29	_ SM7500Sr B		_ R-1160-76	_ DOE Sr-02	_ EPA Sr-04	
_ STRONTIUM-90	_ EPA 905.0	_ EPA 600/4-75-008,p.29	_ SM7500Sr B		_ R-1160-76	_ DOE Sr-02	_ EPA Sr-04	
_ TRITIUM	X EPA 906.0	_ EPA 600/4-75-008,p.34	_ SM7500(3H)B	_ D4107-91	_ R-1171-76		_ EPA H-02	

* List Photon Emitters: Radon-222 via ASTMD-5072-92

CLEAN WATER ACT

_ GROSS ALPHA	X EPA 900.0	_ SM7110B	_ D1943-90	_ USGS 76-177,p.75,78	
_ GROSS BETA	X EPA 900.0	_ SM7110B	_ D1890-90	_ USGS 76-177,p.75,78	
_ TOTAL ALPHA RADIUM	X EPA 903.0	_ SM7500Ra B	_ D2460-90		
_ RADIUM-226	_ EPA 903.1	_ SM7500Ra C	_ D3454-91	_ USGS 76-177,p.81	

RCRA / CERCLA

_ GROSS ALPHA	_ EPA 9310		
_ GROSS BETA	_ EPA 9310		
_ TOTAL ALPHA RADIUM	X EPA 9315		
_ RADIUM-228	_ EPA 9320		

ENERGY LABORATORIES

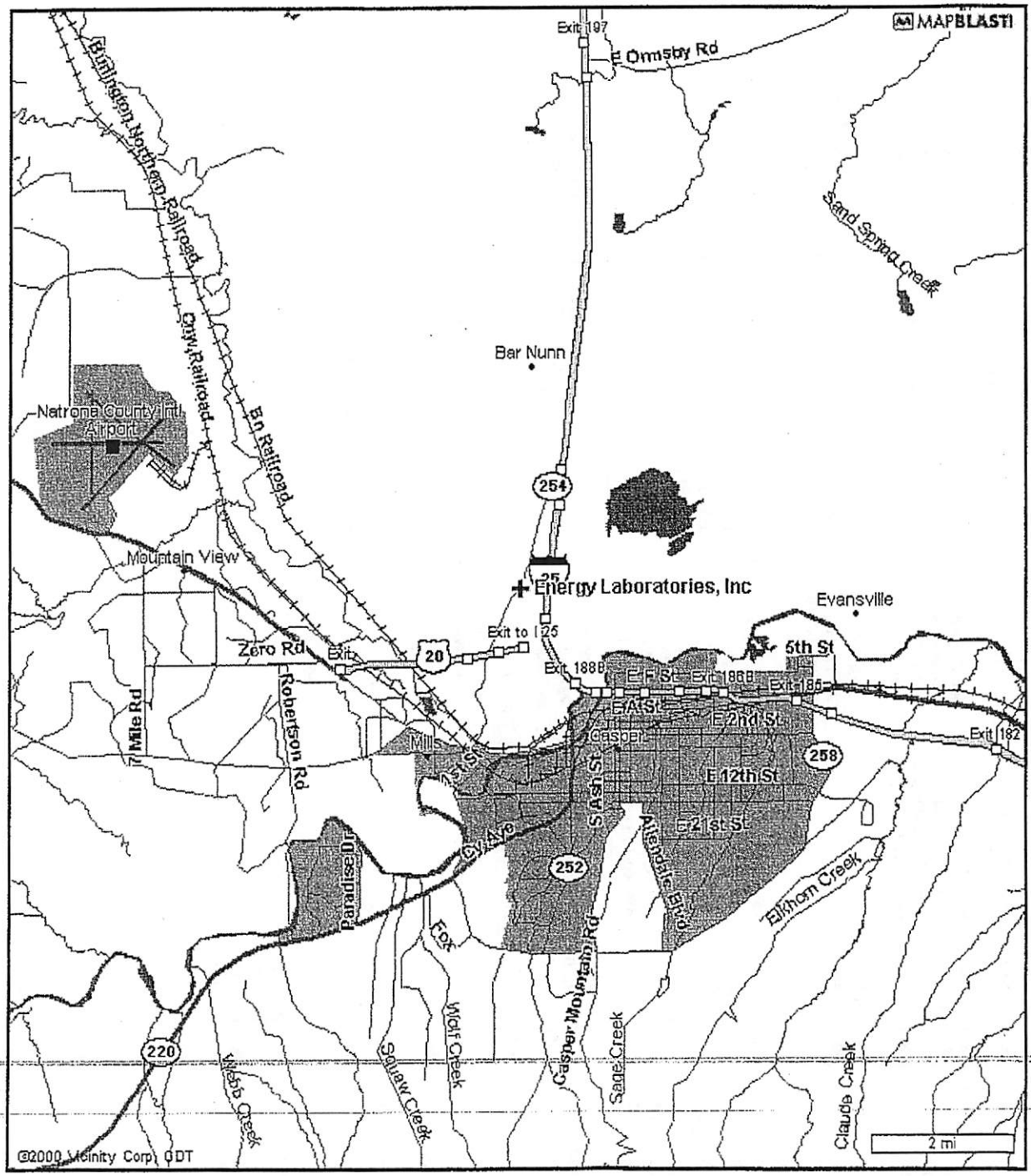
contact: [redacted]

MAPBLAST!

Everyone needs a little direction in life

[redacted]

2393 Old Salt Creek Hwy
Casper, WY 82601-9654



[Icon Latitude: 42.878168, Longitude: -106.351023]

STATE OF FLORIDA
Department of Health, Bureau of Laboratories
1217 Pearl Street, Jacksonville, FL 32202
P.O. Box 210, Jacksonville, FL 32231 (904) 791-1599

APPLICATION FOR CERTIFICATION OF ENVIRONMENTAL TESTING LABORATORIES

Following the instructions on page 3, please complete all applicable parts of this form using a typewriter or computer, or print in ink. **Enclose $200.00 (US) application fee** and return to the above address.

1. Name of Laboratory or Facility (As it should appear on the Certificate): ENERGY LABORATORIES, INC.

2. Description of Laboratory: (check one)
- ☐ State Health Laboratory
- ☐ County Health Department
- ☐ Other State Laboratory
- ☐ Pollution Control Facility
- ☐ Utility Laboratory
- ☐ Federal Organization
- ☐ University/Academic Dept.
- ☒ Commercial Laboratory
- ☐ Research Institution
- ☐ Other (please describe):

3. Location (physical address) of Laboratory: 2325 KERZELL LANE

4. County

City: CASPER State: WY Zip: 82601

5. Mailing Address: (if different from above) P.O. BOX 3258

City: CASPER State: WY Zip: 82602

6. Billing Address: (if different from above)

City: State: Zip:

7. Description of geographical location: (simplified directions to the laboratory) CENTRAL WYOMING, NW OF DOWNTOWN CASPER

8. Name of Owner: [redacted]

9. Address of Owner: ENERGY LABORATORIES, INC.

City: P.O. BOX 30916 BILLINGS State: MT Zip: 59107

10. Name of Lead Technical Director (e.g., Laboratory Director): [redacted]

11. Area Code Telephone Extension: [redacted]

12. Name of Quality Assurance Officer: [redacted]

13. Area Code Telephone Extension: [redacted]

14. Name of Contact Person: [redacted]

15. Area Code Telephone Extension: [redacted]

16. Hours of operation: 8:00 AM - 5:00 PM

17. E-mail Address: [redacted]@energylab.com

18. Facsimile Number: [redacted]

19. Certification Number (if already certified):

20. EPA ID (required for PT acceptance): WY00002

21. Primary Accrediting Authority (if requesting reciprocal certification):

22. Unique Vehicle Identification Number if this application is for a mobile laboratory:

23. Please check if this application is for additional analytes and test methods, in which case **DO NOT** include methods and analytes you are currently certified to perform. ☐ Additional Methods and Analytes

DH 1762, 7/04 (Obsoletes previous editions which may not be used)

ATTESTATION OF COMPLIANCE

I, [redacted] of Energy Laboratories, Inc.
(Laboratory Director or QA Officer) (Laboratory Name)

understand and acknowledge that the laboratory is required to be continually in compliance with all the provisions and standards set forth in Chapter 64E-1 Florida Administrative Code (FAC), Certification of Environmental Testing Laboratories, which have been determined to be equivalent to the National Environmental Laboratory Accreditation Conference (NELAC) standards, and shall be subject to suspension, revocation, and denial of accreditation as specified therein. I also understand and acknowledge that the laboratory is subject to the enforcement and penalty provisions in Sections 403.0625 and 403.863 Florida Statutes and of any secondary accrediting authorities from whom I have obtained accreditation.

I further attest that all certified environmental analyses performed are done in accordance with the provisions and standards in Chapter 64E-1 FAC, which have been determined to be equivalent to the NELAC standards.

I hereby certify that I am authorized to sign this application on behalf of the applicant/owner and that there are no misrepresentations in my answers to the questions on this application. The information, statements, facts, and representations given and made are true and correct, and I am aware that any misrepresentations or falsifications constitute grounds for the imposition of penalties as provided by law.

[redacted]
(Signature, QA Officer or other designated responsible individual)

[redacted]
(Printed Name of Quality Assurance Officer)

Energy Laboratories, Inc.
(Printed Legal Name of Laboratory)

2-16-07
(Date)

[redacted]
(Signature, Technical Director(s))

[redacted]
(Printed Name, Technical Director(s))

ATTESTATION OF COMPLIANCE

[redacted] of Energy Laboratories, Inc.
(Laboratory Director or QA Officer) (Laboratory Name)

understand and acknowledge that the laboratory is required to be continually in compliance with all the provisions and standards set forth in Chapter 64E-1 Florida Administrative Code (FAC), Certification of Environmental Testing Laboratories, which have been determined to be equivalent to the National Environmental Laboratory Accreditation Conference (NELAC) standards, and shall be subject to suspension, revocation, and denial of accreditation as specified therein. I also understand and acknowledge that the laboratory is subject to the enforcement and penalty provisions in Sections 403.0625 and 403.863 Florida Statutes and of any secondary accrediting authorities from whom I have obtained accreditation.

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[redacted]
(Signature, QA Officer or other designated responsible individual)

[redacted]
(Printed Name of Quality Assurance Officer)

Energy Laboratories, Inc.
(Printed Legal Name of Laboratory)

2-16-07
(Date)

Sheryl Garling
(Signature, Technical Director(s))

Sheryl Garling
(Printed Name, Technical Director(s))

ATTESTATION OF COMPLIANCE

I, [redacted] of Energy Laboratories, Inc.
(Laboratory Director or QA Officer) (Laboratory Name)

understand and acknowledge that the laboratory is required to be continually in compliance with all the provisions and standards set forth in Chapter 64E-1 Florida Administrative Code (FAC), Certification of Environmental Testing Laboratories, which have been determined to be equivalent to the National Environmental Laboratory Accreditation Conference (NELAC) standards, and shall be subject to suspension, revocation, and denial of accreditation as specified therein. I also understand and acknowledge that the laboratory is subject to the enforcement and penalty provisions in Sections 403.0625 and 403.863 Florida Statutes and of any secondary accrediting authorities from whom I have obtained accreditation.

I further attest that all certified environmental analyses performed are done in accordance with the provisions and standards in Chapter 64E-1 FAC, which have been determined to be equivalent to the NELAC standards.

I hereby certify that I am authorized to sign this application on behalf of the applicant/owner and that there are no misrepresentations in my answers to the questions on this application. The information, statements, facts, and representations given and made are true and correct, and I am aware that any misrepresentations or falsifications constitute grounds for the imposition of penalties as provided by law.

[redacted]
(Signature, QA Officer or other designated responsible individual)

[redacted]
(Printed Name of Quality Assurance Officer)

Energy Laboratories, Inc.
(Printed Legal Name of Laboratory)

2-16-07
(Date)

[redacted]
(Signature, Technical Director(s))

[redacted]
(Printed Name, Technical Director(s))

ATTESTATION OF COMPLIANCE

I, [redacted] of Energy Laboratories, Inc.
(Laboratory Director or QA Officer) (Laboratory Name)

understand and acknowledge that the laboratory is required to be continually in compliance with all the provisions and standards set forth in Chapter 64E-1 Florida Administrative Code (FAC), Certification of Environmental Testing Laboratories, which have been determined to be equivalent to the National Environmental Laboratory Accreditation Conference (NELAC) standards, and shall be subject to suspension, revocation, and denial of accreditation as specified therein. I also understand and acknowledge that the laboratory is subject to the enforcement and penalty provisions in Sections 403.0625 and 403.863 Florida Statutes and of any secondary accrediting authorities from whom I have obtained accreditation.

I further attest that all certified environmental analyses performed are done in accordance with the provisions and standards in Chapter 64E-1 FAC, which have been determined to be equivalent to the NELAC standards.

I hereby certify that I am authorized to sign this application on behalf of the applicant/owner and that there are no misrepresentations in my answers to the questions on this application. The information, statements, facts, and representations given and made are true and correct, and I am aware that any misrepresentations or falsifications constitute grounds for the imposition of penalties as provided by law.

[redacted]
(Signature, QA Officer or other designated responsible individual)

[redacted]
(Printed Name of Quality Assurance Officer)

Energy Laboratories, Inc.
(Printed Legal Name of Laboratory)

2-16-07
(Date)

[redacted]
(Signature, Technical Director(s))

[redacted]
(Printed Name, Technical Director(s))

INSTRUCTIONS AND CHECKLIST

___ Please request the desired sample Matrix, Test Methods, and Analytes for certification by:
1. Placing an 'X' in the blank for each matrix-method-analyte combination; or
2. Circling the requested parameters; or
3. Writing in the requested matrix-method-analyte combination (if not listed) on Pages 7-55; or
4. If requesting certification in the "Solid and Chemical Materials" or the "Biological Tissues" matrices on any of pages 39-50, by also placing an 'X' in the blank for the matrix requested at the top of each page in addition to placing an 'X' in the blank for each method-analyte combination. (Reproduce these pages as necessary to indicate various matrix-method-analyte combinations); or
5. If requesting reciprocal certification (secondary accreditation or recognition), placing an "**R**" in the blank for each matrix-method-analyte combination. NOTE: If your laboratory has multiple NELAP primary Accrediting Authorities (AA), write each AA in item 21 on page 1. Also, place the 2-letter state abbreviation of the corresponding primary AA for each matrix-method-analyte combination in the blank. **DO NOT** indicate any secondary Accrediting Authority in the blank.

___ Please arrange through your proficiency test sample provider for results from the latest three testing rounds attempted, for each applicable sample matrix, pending technology, and pending analyte to be sent to our office (not required if requesting reciprocal certification).
Note: Testing rounds all must have occurred within the last 18 months.

___ Please submit one copy of the laboratory's documented Quality Manual or the revised pages of the Quality Manual if one was already submitted (not required if requesting reciprocal certification).

___ If you are requesting reciprocal certification, please have the specified NELAP primary Accrediting Authority(ies) submit a valid copy of your Certificate, including a current list of Fields of Accreditation.

(If it is determined that the laboratory is not eligible for reciprocal certification, the Department of Health can schedule an on-site inspection at the laboratory's request to complete the application as the primary Accrediting Authority.)

___ Complete and submit Pages 1-6 describing the laboratory's personnel and location, attesting to compliance with Florida's certification regulations, and providing the additional information required by NELAC Section 4.1.7. Of pages 7-56, you need not send unused pages.

The laboratory will be afforded one year from the department's receipt date of this application form or until the date of the on-site inspection by authorized representatives of the Department of Health, whichever is less, to participate in proficiency testing rounds as required in the department's rules and to revise its Quality Manual as necessary to contain the required elements.

If, when contacted, the laboratory declines the department's scheduling of an on-site assessment, this action constitutes grounds to conclude the application process and to deny the certification requested.

For Department of Health use only:

APPLICATION FOR:

NEW LAB ___ ADD'L ANALYTES/METHODS ___ RECIPROCITY ___ FOLLOWING SURVEY ___ BY: ____

DATES

APP REC'D	STATUS LETT OUT	TO AAMS	DOD	R X S	QUAL MAN (DATE)	

INSPECTORS

SURVEY DATE | APP COMPLETED? | CERT DATE | BY:

INSPECTOR'S COMMENTS:

COMMENTS

PERSONNEL (LABORATORY TECHNICAL DIRECTORS)
(refer to NELAC 4.1.1 for personnel qualifications)

POSITION / TITLE	NAME	ACADEMIC TRAINING (e.g. H.S., BS Chemistry, 20 sem-hr Microbiology)	AREA OF LABORATORY RESPONSIBILITY	EXPERIENCE (Years/Area)	PHONE # and/or E-MAIL ADDRESS
Branch Manager	[redacted]	Pre Medicine	Laboratory Management	20+	[redacted]
QA Director	[redacted]	BA Geology	QA Systems	16	[redacted]
Special Projects Mngr	[redacted]	PhD-Nuclear Chem	Rad Method Compliance	20+	[redacted]
Radchem Supervisor	[redacted]	BS Geography	Supervision of Rchem Lab	20+	[redacted]

QUALITY MANUAL

Please indicate, by section number and/or page number, where the following elements are found in the submitted Laboratory Quality Manual:

MANDATORY ELEMENTS & NELAC REFERENCE	QUALITY MANUAL REFERENCE
5.4.2.3 - Title Page	Front Page
5.4.2.3(a) - Quality Policy Statement, Objectives, & Commitments by top management	Page 3 of 5 Rev 2-16-98
5.4.2.3(b) - Organization & Management Structure, organizational charts, relationship to parent organization	Page 3
5.4.2.3(c) - Relationship between Management, Technical Operations, Support Services, & Quality System	Chptr 4 11, Appx D
5.4.2.3(d) - Procedures for Control & Maintenance of Documentation; Document Control System	Chptr 8, pg 17-19
5.4.2.3(e) - Job Descriptions of Key Staff, plus reference to job descriptions of other staff	Cpptr 4, pg 11, Appx E
5.4.2.3(f) - Identification of Approved Signatories for the Laboratory (e.g. for laboratory test reports)	Front Page
5.4.2.3(g) - Procedures for Achieving Traceability of Measurements	Chptr 7, Page 15,
5.4.2.3(h) - List of All Test Methods, under which accredited testing is performed	Appx F, Appx A
5.4.2.3(i) - Procedures for Reviewing New Work & Ascertaining Appropriateness of Facilities & Resources prior to commencing new work	
5.4.2.3(j) - Reference to Calibration and/or Verification Test Procedures Used	Chptr 7, Pg 15
5.4.2.3(k) - Procedures for Handling Submitted Samples	Chptr 6, Pg 13-15
5.4.2.3(l) - Reference to Major Equipment, Reference Standards, Facilities, & Services used in conducting tests	Chptr 3, Chptr 9, Chptr 12
5.4.2.3(m) - Reference to Procedures for Calibration, Verification, & Maintenance of Equipment	Chptr 7, Cptr 13
5.4.2.3(n) - Reference to Verification Practices (e.g. proficiency testing, interlaboratory comparisons, use of reference materials)	Chptr 2
5.4.2.3(o) - Procedures Followed for Feedback & Corrective Action when testing discrepancies are detected or when departures to documented policies & procedures occur	Chptr 11, Pg 25
5.4.2.3(p) - Management Arrangements for Permitting Departures from Documented Procedures or Standard Specifications	Chptr 11, Pg 25
5.4.2.3(q) - Procedures for Dealing with Complaints	Chptr 11
5.4.2.3(r) - Procedures for Protecting Confidentiality & Proprietary Rights (including national security)	Chptr 9, Pg 22
5.4.2.3(s) - Procedures for Audits & Data Review	Chptr 2, pg 9. Chptr 8
5.4.2.3(t) - Procedures for Establishing that Personnel Are Adequately Experienced and/or Receive Any Needed Training	Chptr 9, Pg 21
5.4.2.3(u) - Procedures for Training Personnel in Their Ethical & Legal Responsibilities (including potential penalties & punishments)	CHPTR 11, Pg 28

QUALITY MANUAL (continued)

MANDATORY ELEMENTS & NELAC REFERENCE	QUALITY MANUAL REFERENCE
5.4.2.3(v) - Reference to Procedures for Reporting Analytical Results	Chpt 8, pg 19
5.4.2.3(w) - Table of Contents and Applicable Lists of References, Glossaries, & Appendices	pg 2-3

OPTIONAL ELEMENTS & NELAC REFERENCE *	QUALITY MANUAL REFERENCE
5.4.2.2(a) - Policies, Objectives, & Commitment to Accepted Laboratory Practices & Quality of Testing Services	
5.4.14.1 & 5.4.14.2 - Procedures for Conducting the Annual Quality System Review by Management	Chpt 2, pg 10
5.5.5.2.2.1(l) - Procedures for Determining the Number of Points for Establishing Initial Instrument Calibrations	
5.5.4.1.1 - Procedures for Assessing Data Integrity, Corrective Actions, Handling Complaints. Test methods, & Other Phases of Current Laboratory Activities	Chpt 8, pg 18
5.5.7.1 - Procedures for Obtaining Representative Subsamples	
5.5.4.7.1(a) - Procedures to Check & Correct Data for Transcription and Calculation Errors	
5.5.4.7.1(b) - Procedures to Review & Evaluate All Quality Control Measures before data are reported	
5.5.6.4 - Procedures for Purchasing, Receiving, & Storing Materials used in technical operations	
5.5.8.2(a) - System for Uniquely Identifying Items (i.e. samples) to be tested	
5.5.8.3.2 - Sample Acceptance Policy	
5.5.8.3.2(f) - Procedures Followed When Samples Show Signs of Damage or Contamination	
5.5.8.4 - Procedures to Avoid Deterioration, Contamination, or Damage to Samples during storage, handling, preparation, & testing	
5.5.8.4(c) - Procedures for Disposal of Samples, Digestates, Leachates, & Extracts	
5.4.12 - Laboratory Record System	
5.4.12.2.4(d) - Laboratory Record Management System	
5.5.10.7 - Procedures for Preserving Confidentiality during Electronic or Electromagnetic Transmission of Test Results	
5.4.6.2 & 5.4.6.4 - Procedures to Ensure that Purchased Equipment, Materials, & Services Meet Specified Requirements	
D - Procedures for Development of Quality Control Acceptance/Rejection Criteria	

* These elements do not need to be present in the laboratory's submitted Quality Manual; however, if they are not included, these elements will be examined in the laboratory's quality documentation during the on-site assessment.

LABORATORY:

MICROBIOLOGY LABORATORY TESTING

DRINKING WATER MATRIX

- __ SM9215B (Heterotrophic Bacteria)
- __ SM9221B (Total Coliform)
- __ SM9221D (Total Coliform)
- __ SM9222B (Total Coliform)
- __ SM9222D (Fecal Coliform)
- __ SM9223B (Total Coliform & *E. coli*)
- __ MI AGAR (Total Coliform & *E. coli*) (EPA 1604)
- __ COLISURE (Total Coliform & *E. coli*)
- __ E*COLITE (Total Coliform & *E. coli*)
- __ m-COLIBLUE24 (Total Coliform & *E. coli*)
- __ CHROMOCULT (Total Coliform & *E. coli*)
- __ READYCULT (Total Coliform & *E. coli*)
- __ COLITAG (Total Coliform & E. coli)
- __ NA + MUG (*E. coli*) (EPA 1105)
- __ EC + MUG (*E. coli*) (EPA 1104)
- __ EPA/600/R-95/178, s. VIII (Viruses)
- __ EPA 910/9-92-029 (Microscopic Particulate Analysis)
- __ EPA 1623 (Cryptosporidium)
- __ EPA 1623 (Giardia)
- __ EPA 1601 (Coliphage Assay)
- __ EPA 1605 (Aeromonas sp.)

NON-POTABLE WATER MATRIX

- __ EPA-600/8-78-017, p. 114
- __ EPA-600/8-78-017, p. 114
- __ EPA-600/8-78-017, p. 132
- __ EPA-600/8-78-017, p. 132
- __ EPA-600/8-78-017, p. 108
- __ EPA-600/8-78-017, p. 111
- __ EPA-600/8-78-017, p. 124
- __ EPA-600/8-78-017, p. 124
- __ EPA-600/8-78-017, p. 139
- __ EPA-600/8-78-017, p. 136
- __ EPA-600/8-78-017, p. 143 (Fecal Streptococci)

- __ J. WPC Fed. V. 46, p. 2163

- __ D4994-89/SM9510G (Enteric viruses)
- __ EPA 600/1-87-014 (Helminth ova)
- __ EPA 1600 (Enterococci)
- __ B-0025-85 (Total Coliform)
- __ B-0050-85 (Fecal Coliform)
- __ B-0055-85 (Fecal Streptococci)

- __ EPA 9131 (Total Coliform)
- __ EPA 9132 (Total Coliform)

- __ SM9215B (Heterotrophic Bacteria)
- __ SM9230C (Enterococci)
- __ EPA 1106.1 (Enterococci)
- __ D5259-92 (Enterococci)
- __ D6503-99 (Enterococci)
- __ ENTEROLERT (Enterococci)

- __ SM9221B (Total Coliform)
- __ SM9221B (Total Coliform with Chlorine present)
- __ SM9221E (Fecal Coliform)
- __ SM9221E (Fecal Coliform with Chlorine present)
- __ SM9222B (Total Coliform)
- __ SM9222B (Total Coliform with Chlorine present)
- __ SM9222D (Fecal Coliform)
- __ SM9222D (Fecal Coliform with Chlorine present)
- __ SM9230B (Fecal Streptococci)
- __ SM9230C (Fecal Streptococci)
- __ EPA-600\8-78-017, p.143 (Enterococci)

- __ SM9260D (Salmonella)

- __ EPA\600\R-95\178, s. VIII (Viruses)
- __ EPA 1604 (MI AGAR) (Total Coliform & *E. coli*)
- __ SM9223B (Colilert) (Total Coliform & *E. coli*)
- __ HACH 10029 (m-ColiBlue 24) (Total Coliform & *E. coli*)
- __ SM9213D (*E. coli*)
- __ EPA 1103.1 (*E. coli*)
- __ EPA 1603 (*E. coli*)
- __ D5392-93 (*E. coli*)

- __ SIMPLATE (Heterotrophic Bacteria)
- __ EPA 1623 Cryptosporidia
- __ EPA 1623 Giardia

SOLID AND CHEMICAL MATERIALS

- __ Total Coliform
- __ Total Coliform
- __ Total Coliform
- __ Fecal Coliform
- __ Fecal Coliform
- __ Fecal Coliform
- __ Fecal Coliform
- __ Fecal Streptococcus
- __ Fecal Streptococcus
- __ Fecal Streptococcus
- __ Fecal Streptococcus

- __ Salmonella
- __ Salmonella
- __ Helminth ova
- __ Enteric Viruses

- __ EPA - 600/8-78-017, p. 114
- __ EPA - 600/8-78-017, p. 108
- __ EPA 9131
- __ EPA 9132
- __ EPA - 600/8-78-017, p. 132
- __ EPA 1680 (MPN)
- __ EPA - 600/8-78-017, p. 124
- __ EPA 1680 (MF)
- __ EPA - 600/8-78-017, p. 139
- __ EPA - 600/8-78-017, p. 136
- __ EPA - 600/8-78-017, p. 143

- __ EPA 1682
- __ J. WPC Fed. V. 46, p. 2163
- __ EPA 600\1-87-014
- __ D4994-89

- __ SM9221E
- __ SM9222B
- __ B-0025-85
- __
- __ SM9221E
- __ B-0050-85
- __ SM9222D
- __
- __ SM9230B
- __ B-0055-85
- __ SM9230C

- __ SM9260D (MF or MPN)

LABORATORY:

WHOLE EFFLUENT TOXICITY LABORATORY TESTING

NON-POTABLE WATER MATRIX

EPA/821/R-02/012 (Acute Toxicity)

(Freshwater)

__ EPA 2002 (Ceriodaphnia dubia)
__ EPA 2000 (Cyprinella leedsi)
__ EPA 2021 (Daphnia pulex)
__ EPA 2021 (Daphnia magna)
__ EPA 2019 (Oncorhynchus mykiss)
__ EPA 2000 (Pimephales promelas)
__ EPA 2019 (Salvelinus fontinalis)

(Saltwater)

__ EPA 2004 (Cyprinodon variegatus)
__ EPA 2006 (Menidia beryllina)
__ EPA 2006 (Menidia menidia)
__ EPA 2006 (Menidia peninsulae)
__ EPA 2007 (Mysidopsis bahia)

EPA/821/R-02/013

__ EPA 1000 (Pimephales promelas)
__ EPA 1001 (Pimephales promelas)
__ EPA 1002 (Ceriodaphnia dubia)
__ EPA 1003 (Selenastrum capricornutum)

EPA/821/R-02/014

__ EPA 1004 (Cyprinodon variegatus)
__ EPA 1005 (Cyprinodon variegatus)
__ EPA 1006 (Menidia beryllina)
__ EPA 1007 (Mysidopsis bahia)
__ EPA 1008 (Arbacia punctulata)
__ EPA 1009 (Champia parvula)

SOLID & CHEMICAL MATERIALS MATRIX

EPA 600/R-94/024 (Freshwater Tox. & Bioaccumulation of Sediment Contaminants)

__ Chironomus tentans
__ Hyalella azteca
__ Lumbriculus variegatus

EPA 600/R-94/025 (Saltwater Tox. & Bioaccumulation of Sediment Contaminants)

__ Ampelisca abdita
__ Eohaustorius estuarius
__ Leptochirus plumulosus
__ Rhepoxynius abronius

EPA-823-B-98-004 (Saltwater Dredged Material Toxicity)

__ Nereis virens

LABORATORY:

RADIOCHEMISTRY

DRINKING WATER MATRIX

✓ GROSS ALPHA	X EPA 900.0	__ EPA p.1	__ EPA 00-01	__ EPA 00-02	__ SM 7110 B	__ SM 7110 C	__ SM 302			__ USGS R-1120-76
✓ GROSS BETA	X EPA 900.0	__ EPA p.1	__ EPA 00-01		__ SM 7110 B	__ SM 302				__ USGS R-1120-76
__ RADIUM 226	__ EPA 903.1	__ EPA p.16	__ EPA Ra-04	__ EPA p.19	__ SM 7500-Ra C	__ SM 304	__ ASTM D3454-91	__ DOE Ra-05		__ USGS R-1141-76
X RADIUM 226	X EPA 903.0	__ EPA p.13	__ EPA Ra-03		__ SM 7500-Ra B	__ SM 305	__ ASTM D2460-90	__ N.Y.		__ USGS R-1140-76
X RADIUM 228	__ EPA 904.0	__ EPA p.24	X EPA Ra-05	__ EPA p.19	__ SM 7500-Ra D	__ SM 304		__ N.Y. / N. J.		__ USGS R-1142-76
__ URANIUM	__ EPA 908.0		__ EPA 00-07	__ EPA p.33	__ SM 7500-U B	__ ASTM D2907-91	__ ASTM D5174-91	__ DOE U-04		__ USGS R-1180-76
__ URANIUM	__ EPA 908.1				__ SM 7500-U C	__ ASTM D3972-90	__ USGS R-1182-76	__ DOE U-02		__ USGS R-1181-76
X TRITIUM	X EPA 906.0	__ EPA p.34	__ EPA H-02	__ EPA p.87	__ SM 7500-3H B	__ SM 306	__ ASTM D4107-91			__ USGS R-1171-76
__ STRONTIUM 89	__ EPA 905.0	__ EPA p.29	__ EPA Sr-04	__ EPA p.65	__ SM 7500-Sr B	__ SM 303	__ DOE Sr-01	__ DOE Sr-02		__ USGS R-1160-76
X STRONTIUM 90	X EPA 905.0	__ EPA p.29	__ EPA Sr-04	__ EPA p.65	__ SM 7500-Sr B	__ SM 303	__ DOE Sr-01	__ DOE Sr-02		__ USGS R-1160-76
__ IODINE	__ EPA 902.0	__ EPA p.6		__ EPA p.92	__ SM 7120 B	__ SM 7500-I C	__ ASTM D3649-91	__ DOE 4.5.2.3		
__ IODINE	__ EPA 901.1	__ EPA p.9			__ SM 7500-I B	__ SM 7500-I D	__ ASTM D4785-88			
__ CESIUM	__ EPA 901.0	__ EPA p.4		__ EPA p.92	__ SM 7500-Cs B		__ ASTM D2459-72	__ DOE 4.5.2.3		__ USGS R-1111-76
__ CESIUM	__ EPA 901.1				__ SM 7120 B		__ ASTM D3649-91			__ USGS R-1110-76
__ GAMMA EMITTERS	__ EPA 901.1	__ EPA 902.0	__ EPA 901.0	__ EPA p.92	__ SM 7120 B	__ SM 7500-Cs B	__ ASTM D3649-91	__ DOE 4.5.2.3		__ USGS R-1110-76
__ GAMMA EMITTERS					__ SM 7500-I B		__ ASTM D4785-88			

NON-POTABLE WATER MATRIX

__ TOTAL ALPHA	__ EPA 900.0	__ EPA 9310	__ SM 7110B	__ ASTM D1943-90	__ USGS pp. 75 & 78
__ TOTAL BETA	__ EPA 900.0	__ EPA 9310	__ SM 7110B	__ ASTM D1890-90	__ USGS pp. 75 & 78
__ RADIUM 226	__ EPA 903.1		__ SM 7500-Ra C	__ ASTM D3454-91	__ USGS pp. 81
__ TOTAL RADIUM	__ EPA 903.0	__ EPA 9315	__ SM 7500-Ra B	__ ASTM D2460-90	
__ RADIUM 228		__ EPA 9320			

(Please Add EPA 907.0 For Uranium IN Non-Potable Water)

NOT A SELECTION ON AAMs need to be added

SOLID & CHEMICAL MATERIALS MATRIX

__ GROSS ALPHA	__ EPA 9310
__ GROSS BETA	__ EPA 9310
__ TOTAL RADIUM	__ EPA 9315
__ RADIUM 228	__ EPA 9320

FLORIDA ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM
Pre-Assessment Checklist

Laboratory: Energy Laboratories Inc.	Scheduled Assessment Date(s): 02/15/2007
Certification ID: E87641	Lead Assessor: [redacted] Team Members:

✔	Date Completed	Pre-Assessment Activity
	✓	Schedule and Conflict of Interest form approved.
	✓	Travel approved.
	✓	Preliminary contact made. (☐ Security clearances obtained, if necessary)
	✓	Travel arrangements made.
	2/9/2007	AAMS records reviewed.
	2/9/2007	Laboratory Scope of Accreditation reviewed.
	ONSITE	Available Quality Manual reviewed.
	2/9/2007	PTs from latest 3 studies reviewed.
	✓	Pending file(s) and unexpired application(s) reviewed.
	2/9/2007	Previous full biennial assessment report, any subsequent assessment reports for pending FOAs, and POC reviewed.
	2/9/2007	Checklists assembled.
	✓	Laboratory formally notified in writing (required at least 2 weeks in advance unless shorter notice approved by Program Administrator _____) and checklists sent.
	2/9/2007	Appraisal form, confidentiality notice, and opening and closing conference checklists assembled.
	✓	Available documents from recipients of reports from the laboratory reviewed.
	✓	Existing federal and state program regulations reviewed.
	✓	Methods reviewed for which the laboratory has requested or maintains certification.

Notes:

FLORIDA ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM

Pre-Assessment Checklist

Laboratory: Energy Laboratories, Inc. #2 Casper	Scheduled Assessment Date(s): 02/14/2007 L16
Certification ID: ~~E87669~~ PENPILES	Lead Assessor: [redacted] Team Members:

✔	Date Completed	Pre-Assessment Activity — All Doc. Prep On-site since Applied then.
✓	✓	Schedule and Conflict of Interest form approved.
✓	✓	Travel approved.
✓	✓	Preliminary contact made. (☐ Security clearances obtained, if necessary)
✓	✓	Travel arrangements made.
✓	✓	AAMS records reviewed.
✓	✓	Laboratory Scope of Accreditation reviewed.
✓	✓	Available Quality Manual reviewed.
✓	✓	PTs from latest 3 studies reviewed.
✓	✓	Pending file(s) and unexpired application(s) reviewed.
✓	✓	Previous full biennial assessment report, any subsequent assessment reports for pending FOAs, and POC reviewed.
✓	✓	Checklists assembled.
✓	✓	Laboratory formally notified in writing (required at least 2 weeks in advance unless shorter notice approved by Program Administrator _____) and checklists sent.
✓	✓	Appraisal form, confidentiality notice, and opening and closing conference checklists assembled.
✓	✓	Available documents from recipients of reports from the laboratory reviewed.
✓	✓	Existing federal and state program regulations reviewed.
✓	✓	Methods reviewed for which the laboratory has requested or maintains certification.

Notes:

FLORIDA ENVIRONMENTAL LABORATORY CERTIFICATION PROGRAM
Opening Conference Checklist

Time Opening Conference began: 2:50 Time Opening Conference Ended: 4:30PM

Laboratory: Energy Laboratories Inc.	Date: 02/15/2007 1st 2/14/2007
Certification ID: E87641	Lead Assessor: Jorge Vargas Alicea

Attendance at Opening Conference:

[redacted]

✓	3.5.2(b)	Identify assessment team members and present credentials (DOH ID badge and/or business cards).
✓	3.5.2(a)	State the purpose of the on-site laboratory assessment.
✓	3.5.2(c)	List the tests and primary areas that will be examined during the assessment.
✓	3.5.2(d)	Identify the pertinent records and operating procedures to be examined, plus the names of laboratory individuals responsible for providing the necessary documentation.
✓	3.5.2(e)	Identify roles and responsibilities of key managers and staff in the laboratory.
✓	3.5.2(f)	Describe procedures related to Confidential Business Information and present the responsible laboratory official with NELAP Assessment Confidentiality Notice.
✓	3.4.5	Inform laboratory officials of their right to claim any portion of information requested during the assessment as Confidential Business Information.
✓	3.5.2(g)	Identify any special safety procedures that the laboratory thinks is necessary for the protection of the assessment team while in certain parts of the laboratory facility.
✓	3.5.2(h)	Identify the standards that will be used to judge the adequacy of the laboratory operation. Version of NELAC 2003
✓	3.5.2(i)	Establish a tentative time for the exit conference. 11:00 AM
✓	3.5.2(j)	~~Present the assessment appraisal form to the responsible laboratory official.~~
✓	3.5.2(k)	Discuss any questions the laboratory may have about the certification process.

Notes:

NATIONAL ENVIRONMENTAL LABORATORY ACCREDITATION CONFERENCE (NELAC)

ON-SITE LABORATORY ASSESSMENT

QUALITY SYSTEMS CHECKLIST (23 PAGES TOTAL)

LABORATORY: Energy Laboratories Inc. E87641

Physical Address: 2393 Salt Creek Hwy

Casper, WY 82601

Mailing Address: P.O. Box 3258, Casper, WY82602
(if different from above)

Telephone Number: (307) 235-0515 Facsimile Number: (307) 234-1639

E-mail address:

INSPECTED BY:	(Name)	(Affiliation)
	[redacted]	FLDOH
	[redacted]	FLDOH
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INSPECTION DATES: 02/15/2007

LABORATORY TECHNICAL DIRECTORS AND MANAGEMENT:

(Name)	(Title)
Sheryl Starling	Lab. Operation Manager
[redacted]	Lab Manager
	Lab QA/QC Officer
	Lab. Metal Supervisor
	Lab. Organic Supervisor
	Lab Kept.

X 5.1.1. IDOC 5522 WIN6 ±30% NOT 20%

ADD SM2540D

X 5.1.1 EPA 8015-PRO GC Retention Time Windows not kept

X 5.5.5.2.2.1 (d) SOS 2nd source NOT USED

X 5.5.5.2.2.1 (f) ∠[IOC] ≠ LOQ EPA 200.7

X 5.5.5.2.2.1 (h) Less uncertainty outside IC NOT FLAG. 200.7

X 5.1.1 LOR EPA 3532) 5522 ; LCS (IDOC) SET 30% NOT 20%

5.4 LABORATORY MANAGEMENT ORGANIZATION

5.4.1 ORGANIZATION

5.4.1.1 Is the laboratory, or the organization of which it is part, an entity that can be held legally responsible.

5.4.1.2 Does the laboratory accept responsibility to carry out its environmental testing activities in such a way as to meet the requirements of the NELAC Standards and to satisfy the needs of the client, the regulatory authorities, or organizations providing recognition.

5.4.1.3 Does the laboratory management system cover work carried out in the laboratory's permanent facilities, at sites away from its permanent facilities, or in associated temporary or mobile facilities.

5.4.1.4 If the laboratory is part of an organization performing activities other than environmental testing, are the responsibilities of key personnel in the organization that having an involvement or influence on the environmental testing activities of the laboratory defined in order to identify potential conflicts of interest

5.4.1.4(a) Where a laboratory is part of a larger organization, are the organizational arrangements such that departments having conflicting interests (e.g., production, financing, or commercial marketing) do not adversely influence the laboratory's compliance with the requirements of the NELAC Standards

5.4.1.4(b) Is the laboratory able to demonstrate that it is impartial & that it has personnel that are free from any undue commercial, financial, or other pressures which might influence their technical judgment

5.4.1.4(b) Does the laboratory not engage in any activities that may endanger the trust in its independence of judgment & integrity in relation to its environmental testing activities

5.4.1.5(a) Does the laboratory have managerial staff with the authority & resources needed to carry out their duties

5.4.1.5(a) Does the managerial staff have the authority & resources needed to identify departures from the quality system, or from the procedures for performing environmental tests

5.4.1.5(a) Does the managerial staff have the authority & resources needed to initiate actions to prevent such departures from the quality system

5.4.1.5(b) Does the laboratory have processes to ensure that its personnel are free from commercial, financial, or other undue pressures which might adversely affect quality of their work

5.4.1.5(c) Does the laboratory have documented policy & procedures for ensuring the protection of clients' confidential information & proprietary rights, including procedures for protecting the electronic storage & transmission of results (Note: may not be applicable to in-house laboratories)

5.4.1.5(d) Does the laboratory have policies & procedures to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment, or operational integrity

5.4.1.5(e) Does the laboratory define its organization & management structure, its place in any parent organization, & the relationship between quality management, technical operations, & support services

5.4.1.5(f) Does the laboratory specify the responsibility, authority, & interrelationship of all personnel who manage, perform, or verify work affecting the quality of tests

5.4.1.5(f) Does the documentation include a clear description of the lines of responsibility in the laboratory & proportioned such that adequate supervision is ensured

5.4.1.5(g) Does the laboratory have adequate supervision of environmental testing staff, including trainees

5.4.1.5(g) Does the laboratory provide supervision by persons familiar with the test methods & procedures, the objective of the test, and the assessment of the results

5.4.1.5(h) Does the laboratory have technical management who have overall responsibility for the technical operations & the provision of resources needed to ensure the quality of laboratory operations

5.4.1.5(h) Does the laboratory have documented certifications that personnel with appropriate educational and/or technical backgrounds perform all tests for which the laboratory is accredited

5.4.1.5(h) Does the technical director(s) meet the personnel qualifications in NELAC Standard 4.1.1.1

- ALL CASES – full-time member of the laboratory staff who exercises actual day-to-day supervision of laboratory operations & reporting of results, monitors standards of QA/QC performance, and monitors the validity of analyses performed & data generated in the laboratory to assure reliable data
- Chemical analysis - Bachelor's degree in chemical, environmental, biological, physical sciences or engineering; at least 24 semester hours college credit in chemistry & at least 2 years experience in environmental analysis of representative INORGANIC & organic analytes for which the laboratory is accredited (Master's degree or doctorate may substitute for 1 year of experience)
- Nonmetal INORGANIC Chemical analysis (only) - associates degree in chemical, physical, or environmental sciences OR 2 years equivalent, successful college education with at least 16 semester hours college credit in chemistry; plus 2 years experience performing such analysis
- Microbiological or Biological analysis - Bachelor's degree in microbiology, biology, chemistry, environmental sciences, physical science or engineering with at least 16 semester hours college credit in general microbiology and biology, plus at least 2 years experience in environmental analysis of representative analytes for which the laboratory is accredited (Master's degree or doctorate may substitute for 1 year of experience)
- Fecal Coliform, Total Coliform, & Standard Plate Count (only) - associates degree in the appropriate sciences or applied science OR 2 years equivalent successful college education including 4 semester credit hours in general microbiology; plus 1 year experience in environmental analysis
- Radiological analysis - Bachelor's degree in chemistry, physics, or engineering with at least 24 semester hours college credit in chemistry; plus at least 2 years experience in radiological analysis of environmental samples (Master's degree or doctorate may substitute

✓ 5.4.2.3 Does the Quality Manual and related quality documentation state the laboratory's policies and procedures established in order to meet the requirements of the NELAC Standards
Note: When the laboratory Quality Manual contains the necessary requirements, a separate SOP or policy is not required

✓ 5.4.2.3 Does the Quality Manual's title page list:
not for the Radiochem bldg. in Facility #2
- a document title
- laboratory's full name and address
- name, address, and telephone number of individual(s) responsible for the laboratory
- name of the quality assurance (QA) officer (however named)
- all major organizational units covered by this Quality Manual
- effective date of this Quality Manual version

__ 5.4.2.3(f) Does the Title Page have the signed concurrence (with appropriate position titles) of the QA officer, technical director(s), and the agent in charge of all laboratory activities (e.g. laboratory director or laboratory manager)

Does the Quality Manual and related quality documentation also contain:

EFFECTIVE DATE & VERSION NUMBER OF QUALITY MANUAL REVIEWED: Rev 2, 13.07 2/13/2007

__ 5.4.2.3 reference to the supporting procedures including technical procedures

__ 5.4.2.3 an outline of the structure of the documentation used in the quality system

✓ 5.4.2.3(v) a Table of Contents, and applicable lists of references, glossaries, and appendices

__ 5.4.2.3(a) a quality policy statement, including objectives and commitments, by top management

__ 5.4.2.3(b) the laboratory's organization & management structure, its place in any parent organization, and relevant organizational charts

✓ 5.4.2.3(c) the relationship between management, technical operations, support services, & quality system

__ 5.4.2.3(d) procedures to ensure that all records required under NELAC Chapter 5 are retained

__ 5.4.2.3(d) procedures for control & maintenance of documentation through a document control system,which ensures that all standard operating procedures, manuals, & documents clearly indicate the time period during which the procedure or document was in force

__ 5.4.2.3(e) job descriptions of key staff and reference to the job descriptions of other staff

__ 5.4.2.3(f) identification of the laboratory's approved signatories

__ 5.4.2.3(g) the laboratory's procedures for achieving traceability of measurements

✓ 5.4.2.3(h) a list of all test methods under which the laboratory performs its accredited testing

__ 5.4.2.3(i) mechanisms for ensuring that the laboratory reviews all new work to ensure that it has the appropriate facilities & resources before commencing such work

__ 5.4.2.3(j) reference to the calibration and/or verification test procedures used

__ 5.4.2.3(k) procedures for handling submitted samples

__ 5.4.2.3(l) reference to the major equipment & reference measurement standards used, plus the facilities & services used by the laboratory in conducting tests

__ 5.4.2.3(m) reference to procedures for calibration, verification, & maintenance of equipment

__ 5.4.2.3(n) reference to verification practices

Note: Such practices may include interlaboratory comparisons, proficiency testing programs, use of reference materials, & internal quality control schemes

__ 5.4.2.3(o) procedures to be followed for feedback & corrective action whenever testing discrepencies are detected, or departures from documented policies & procedures occur

__ 5.4.2.3(p) the laboratory management arrangements for exceptionally permitting departures from documented policies & procedures or from standard specifications

__ 5.4.2.3(q) procedures for dealing with complaints

__ 5.4.2.3(r) procedures for protecting confidentiality & proprietary rights (including national security)

__ 5.4.2.3(s) procedures for audits & data review

__ 5.4.2.3(t) processes/procedures for establishing that personnel are adequately experienced in the duties they are expected to carry out and/or receive any needed training

__ 5.4.2.3(u) reference to procedures for reporting analytical results

__ 5.4.2.4 roles & responsibilities of the technical management & the quality manager, including their responsibility for ensuring compliance with the NELAC Standards

✓ 5.4.2.6 data integrity procedures, defined in detail
Note: The four required elements in a data integrity system are:
- data integrity training
- signed data integrity documentation for all laboratory employees
- in-depth periodic monitoring of data integrity
- data integrity procedure documentation

__ 5.4.2.5 Is the Quality Manual maintained current under the responsibility of the QA officer

__ 5.4.2.6 Are the data integrity procedures signed & dated by senior management

__ 5.4.2.6 Are the data integrity procedures & the associated implementation records properly maintained & made available for assessor review

__ 5.4.2.6 Are the data integrity procedures annually reviewed & updated by management

__ 5.4.2.6.1 Does the laboratory management provide a mechanism for confidential reporting of data integrity issues in the laboratory

Note: A primary element of this mechanism is to assure confidentiality & a receptive environment in which all employees

Note: A contract may be any oral or written agreement to provide the client with env. testing services

5.4.4.2 Does the laboratory maintain records of such reviews, including any significant changes

5.4.4.2 Does the laboratory maintain records of pertinent discussions with a client relating to the client's requirements or the results of the work during the execution period of the contract

Note: For reviews of routine & other simple tasks, the date & initials of the person responsible for carrying out the contracted work are considered adequate. For repetitive routine tasks, the review need be made only at the initial enquiry stage & on granting the contract for on-going routine work performed under a general agreement with the client, provided the client's requirements remain unchanged. For new, advanced, or complex environmental testing tasks, a more comprehensive record should be maintained.

5.4.4.3 Does the review cover any work that is subcontracted by the laboratory

5.4.4.4 Is the client informed of any deviation from the contract

5.4.4.5 Does the laboratory repeat the same contract review process if a contract needs to be amended after work has commenced

5.4.4.5 Are any contract amendments communicated to all affected personnel

5.4.4.5 Does the laboratory report any suspensions, revocations, or voluntary withdrawals of accreditation to the client

COMMENTS:

5.4.5 SUBCONTRACTING OF ENVIRONMENTAL TESTS

Note: The following Standards apply if the laboratory subcontracts any portion of testing of a client's sample to another party

5.4.5.1 Does the laboratory submit any subcontract work for testing covered under NELAP only to a laboratory accredited under NELAP for the tests to be performed

Note: The subcontractor can also be a laboratory that meets applicable statutory & regulatory requirements for performing the tests & submitting the results of tests performed

5.4.5.1 Does the laboratory indicate in final reports the laboratory performing subcontracted work

5.4.5.1 Does the laboratory clearly identify in final reports non-NELAP accredited work

5.4.5.2 Does the laboratory advise its clients in writing of its intentions to subcontract any portion of testing to another party

Note: When appropriate, approval of the client needs to be gained, preferably in writing

5.4.5.3 Does the laboratory accept responsibility to the client for the subcontractor's work, except when the client or the regulatory authority specifies which subcontractor is to be used

5.4.5.4 Does the laboratory retain a register of all subcontractors used & records demonstrating that its subcontract laboratories are accredited under NELAP or applicable statutory & regulatory requirements

5.4.6 PURCHASING SERVICES & SUPPLIES

Need SOP for Billing Link

5.4.6.1 Does the laboratory have policy & procedures for selection & purchasing of services & supplies it uses that affect the quality of the environmental tests

5.4.6.1 Do procedures exist for the purchase, reception, & storage of reagents & consumable materials relevant for the environmental tests

5.4.6.2 Does the laboratory ensure that purchased supplies, reagents, & consumable materials are not used until they are inspected or otherwise verified as complying with standard specifications or requirements defined in the methods for the environmental tests concerned

5.4.6.2 Does the laboratory ensure that supplies & services comply with specified requirements

5.4.6.2 Does the laboratory maintain records of actions taken to check compliance with these requirements

5.4.6.3 Do purchasing documents for items affecting the quality of laboratory output contain data describing the services & supplies ordered

5.4.6.3 Are these purchasing documents reviewed & approved for technical content prior to release

5.4.6.4 Does the laboratory evaluate suppliers of critical consumables, supplies, & services that affect the quality of environmental testing

5.4.6.4 Does the laboratory maintain records of these evaluations and list those (suppliers) approved

5.4.7 SERVICE TO THE CLIENT

5.4.7 Does the laboratory afford clients or their representatives cooperation to clarify the client's request & to monitor the laboratory's performance in relation to the work performed (provided that the laboratory ensures confidentiality to other clients)

5.4.8 COMPLAINTS

5.4.8 Does the laboratory have documented policies & procedures for the resolution of complaints received from clients or other parties

5.4.8 Does the laboratory maintain records of all such complaints and of the investigations & actions taken by the laboratory

5.4.9 CONTROL OF NON-CONFORMING ENVIRONMENTAL TESTING WORK

5.4.9.1 Does the laboratory have policies & procedures to be implemented when any aspect of environmental testing work,

__ 5.4.12 Does the laboratory maintain a record system to suit its particular circumstances & to comply with any applicable regulations

__ 5.4.12 Does the record system produce unequivocal, accurate records which document all laboratory activities

__ 5.4.12 Does the laboratory retain on record all original observations, calculations & derived data, calibration records, and a copy of the test report for at least 5 years

__ 5.4.12 Does the laboratory have a written SOP for carrying out legal chain-of-custody if a client specifies that a sample will be used for evidentiary purposes

5.4.10.12.1 General

__ 5.4.12.1.1 Has the laboratory established & maintained procedures for the identification, collection, indexing, access, filing, storage, maintenance, & disposal of quality & technical records

Note: Quality records include reports from internal audits & management reviews as well as records of corrective & preventive actions; records may be in any media, such as hardcopy or electronic media

__ 5.4.12.1.2 Are all records legible

__ 5.4.12.1.2 Are all records stored & retained in such a way that they are easily retrievable in facilities that provide a suitable environment to prevent damage or deterioration & to prevent loss

__ 5.4.12.1.2 Has the laboratory established retention times of records

__ 5.4.12.1.3 Are all records held secure & in confidence

__ 5.4.12.1.4 Does the laboratory have procedures to protect & back-up records stored electronically & to prevent unauthorized access to or amendment of these records

__ 5.4.12.1.5 Does the record keeping system allow historical reconstruction of all laboratory activities that produced the resultant sample analytical data

__ 5.4.12.1.5 Is the history of the sample readily understood through the documentation (including interlaboratory transfers of samples and/or extracts)

__ 5.4.12.1.5(a) Do the records include the identity of personnel involved in sampling, sample receipt, preparation, calibration, & testing

__ 5.4.12.1.5(b) Has the laboratory documented all information relating to the laboratory facilities equipment, analytical test methods, & related laboratory activities (e.g. sample receipt, sample preparation, & data verification)

__ 5.4.12.1.5(c) Does the record keeping system facilitate the retrieval of all working files & archived records for inspection & verification purposes (e.g., set format for naming electronic files)

__ 5.4.12.1.5(d) Are all changes to records signed or initialed by responsible staff

__ 5.4.12.1.5(d) Is the reason for the signature or initials clearly indicated in the records (e.g. "sampled by", "prepared by," or "reviewed by")

__ 5.4.12.1.5(e) Is all generated data recorded directly, promptly, & legibly in permanent ink

Note: This does not include data generated by automated data collection systems

__ 5.4.12.1.5(f) Are entries in records not obliterated by erasures, overwritten files, or markings

__ 5.4.12.1.5(f) Are all corrections to record-keeping errors made by one line marked through the error, with the individual making the correction signing (or initialing) & dating the correction

Note: This also applies to electronically maintained records

5.4.12.2 Technical Records

__ 5.4.12.2.1 Does the laboratory retain records of original observations, derived data, & sufficient information to establish an audit trail, calibration records, staff records, & a copy of each test report issued for a defined period

__ 5.4.12.2.1 Do the records for each environmental test contain sufficient information to facilitate the identification of factors (if possible) affecting the uncertainty & to enable the environmental test to be repeated under conditions as close as possible to the original

__ 5.4.12.2.1 Do the records include the identity of personnel responsible for the sampling, performance of the environmental test, & checking the results

__ 5.4.12.2.2 Are observations, data, & calculations recorded at the time they are made & identifiable to the specific task

__ 5.4.12.2.3 When mistakes occur in the records, is each mistake crossed out, not erased or made illegible or deleted, with correct value entered alongside

__ 5.4.12.2.3 Are all such alterations to records signed or initialed by the person making the correction

__ 5.4.12.2.3 Does the laboratory take equivalent measures to avoid loss or change of original data in records stored electronically

__ 5.4.12.2.3 When corrections are due to reasons other than transcription errors, does the laboratory document the reason for the correction

__ 5.4.12.2.4(a) Are all laboratory records & reports safely stored, held secure, & in confidence to the client

__ 5.4.12.2.4(a) Are all NELAP-related records available to the accrediting authority

__ 5.4.12.2.4(b) Are all laboratory records retained for a minimum of 5 years from generation of the last entry in the records

__ 5.4.12.2.4(b) Does the laboratory maintain all information necessary for the historical reconstruction of data

__ 5.4.12.2.4(b) If records are stored only on electronic media, does the laboratory have the supportive hardware & software necessary for data retrieval

__ 5.4.12.2.4(c) Do laboratory records stored or generated by computers have hard-copy or write-protected back-up copies

__ 5.4.12.2.4(d) Has the laboratory established a record management system for control of laboratory notebooks, instrument logbooks, standards logbooks, & records for data reduction, validation, & reporting

5.4.13.1 Does the QA Manager take responsibility to plan & organize internal audits as required by schedule & as required by management

5.4.13.1 Is the QA officer or designee conducting the internal audits trained & qualified as an auditor and, where possible, independent of the activity being audited

Note: Personnel can audit their own activities ONLY when it can be demonstrated that an effective audit can be carried out

5.4.13.2 Does the laboratory take immediate corrective action when the internal audit findings cast doubt on the correctness or validity of the laboratory's test results

5.4.13.2 Does the laboratory immediately notify, in writing, any client whose work was involved in the internal audit findings

5.4.13.2 Does the laboratory notify clients promptly, in writing, of any event that casts doubt on the validity of results given in any test report or amendment to a test report (e.g. identification of defective measuring or test equipment)

5.4.13.2 Does the laboratory specify in its Quality Manual the time frame for notifying a client of events that cast doubt on the validity of the test results

5.4.13.3 Does the laboratory document all internal audit findings plus any corrective actions that arise from them

5.4.13.3 Does the laboratory management ensure that corrective actions are discharged within the appropriate & agreed time frame as indicated in the quality manual and/or SOP's

5.4.13.4 Are follow-up audit activities conducted that verify & record the implementation & effectiveness of the corrective action taken

COMMENTS:

5.4.14 MANAGEMENT REVIEWS

5.4.14.1 Does the laboratory management annually conduct a review of its quality system & its testing activities, in order to ensure its continuing suitability & effectiveness and to introduce any necessary changes or improvements in the quality system & laboratory operations

5.4.14.1 Does the annual management review take into account:

- suitability of policies & procedures
- reports from managerial & supervisory personnel
- outcomes from recent internal audits
- corrective & preventive actions
- assessments by external bodies
- results from interlaboratory comparisons or proficiency tests
- changes in the volume & type of work undertaken
- feedback from clients
- complaints
- other relevant factors, such as quality control activities, resources, & staff training

5.4.14.2 Does the laboratory have a procedure for the annual management review of the quality system

5.4.14.2 Does the laboratory maintain records of management review findings & actions

5.4.14.2 Does the laboratory management ensure that corrective actions are discharged within the appropriate & agreed time frame

5.4.15 Does the laboratory ensure that a review is conducted with respect to any evidence of inappropriate actions or vulnerabilities related to data integrity

5.4.15 Does the laboratory handle the discovery of potential issues in a confidential manner until such time that a follow-up investigation, full investigation, or other appropriate actions have been completed & the issues clarified

5.4.15 Are all investigations resulting in a finding of inappropriate activity documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients

5.4.15 Does the laboratory maintain all documentation of these investigations & actions taken for at least 5 years

COMMENTS:

was mention on previous on-site -

5.5.2.7 Are the topics covered in data integrity training documented in writing & provided to all trainees

5.5.2.7 Do the key topics covered during data integrity training include organizational mission & its relationship to the critical need for honesty & full disclosure in all analytical reporting, how & when to report data integrity issues, & record-keeping

5.5.2.7 Does data integrity training include discussion regarding all data integrity procedures, data integrity training documentation, in-depth data monitoring, & data integrity procedure documentation

5.5.2.7 Are employees required to understand that any infractions of the laboratory data integrity procedures will result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment, or civil/criminal prosecution

5.5.2.7 Does the data integrity training & annual refresher training have a signature attendance sheet or other forms of documentation demonstrating that all staff have participated & understand their obligations related to data integrity

Note: Senior managers acknowledge their support of these procedures by upholding the spirit & intent of the organization's data integrity procedures & effectively implementing the specific requirements of the procedures

Note: Specific examples of breaches of ethical behavior include:

- improper data manipulations
- adjustments of instrument time clocks
- inappropriate changes in concentrations of standards

Note: Data integrity training procedures could include:

- emphasis on proper written narration in cases where analytical data may be useful, but are partially deficient
- written ethics agreements
- examples of improper practices
- examples of improper chromatographic manipulations
- requirements for external ethics program training
- any external resources available to employees

COMMENTS:

5.5.3 ACCOMMODATION & ENVIRONMENTAL CONDITIONS

5.5.3.1 Is the laboratory's accommodation, test areas, energy sources, lighting, heating & ventilation such as to facilitate the proper performance of tests

5.5.3.1 Does the laboratory environment in which its activities are taken not invalidate the results or adversely affect the required accuracy of measurement

Note: Particular attention must be noted when laboratory activities are at sites other than its permanent premises

5.5.3.1 Does the laboratory document the technical requirements for accommodation & environmental conditions that can affect the results of environmental tests

5.5.3.2 Does the laboratory provide for effective monitoring, control, & recording of appropriate environmental conditions (such as biological sterility, dust, electromagnetic interference, humidity, mains voltage, temperature, and sound & vibration levels)

5.5.3.2 Does the laboratory stop environmental tests when the environmental conditions jeopardize the results of the environmental tests

5.5.3.3 Does the laboratory have effective separation between neighboring areas when the activities therein are incompatible (including culture handling or incubation areas, & volatile organic chemicals handling areas)

5.5.3.3 Does the laboratory take measures to prevent cross-contamination

5.5.3.4 Does the laboratory define and control access to & use of all areas affecting the quality of its activities (the extent of control is determined based on its particular circumstances)

5.5.3.5 Does the laboratory take adequate measures to ensure good housekeeping in the laboratory & to ensure that any contamination does not adversely affect data quality

5.5.3.5 Are special procedures prepared where necessary

5.5.3.6 Does the laboratory's available work spaces ensure an unencumbered work area

Work areas include:

- Access and entryways to the laboratory
- Sample receipt area(s)
- Sample storage area(s)
- Chemical & waste storage area(s)
- Data handling & storage area(s)

COMMENTS:

5.5.4 ENVIRONMENTAL TEST METHODS

5.5.4.1 General

5.5.4.1 Does the laboratory use appropriate test methods & procedures for all tests & related activities within its responsibility

Note: Includes sample collection, sample handling, transport & storage, sample preparation, sample analysis, estimations of uncertainty, & statistical techniques

5.5.4.1 Does the laboratory have documented instructions on the use & operation of all relevant equipment, and on the handling & preparation of samples (where the absence of such instructions could jeopardize the tests)

5.5.4.1 Are all instructions, standards, manuals, & reference data relevant to the work of the laboratory maintained up-to-date

5.5.4.6 Estimation of Uncertainty of Measurement

__ 5.5.4.6.1 Does the laboratory have & apply procedures for estimating uncertainty of measurement

__ 5.5.4.6.1 At a minimum, does the laboratory attempt to identify all the components of uncertainty & make a reasonable estimation

__ 5.5.4.6.1 Does the laboratory ensure that the form of reporting of the test result does not give a wrong impression of the uncertainty

__ 5.5.4.6.1 Is the reasonable estimation (of the uncertainty) based on knowledge of the performance of the method & on the measurement scope

__ 5.5.4.6.1 Is the reasonable estimation make use of previous experience & validation data

Note: In cases where a well-recognized test method specifies limits to the values of the major sources of uncertainty of measurement, and specifies the form of the calculated results, the laboratory is considered to have satisfied this clause by following the test method & reporting instructions

__ 5.5.4.6.2 When estimating the uncertainty of measurement, does the laboratory take into account all uncertainty components which are of importance in the given situation using appropriate methods of analysis

COMMENTS:

5.5.4.7 Control of Data

__ 5.5.4.7.1 Does the laboratory subject calculations & data transfers to appropriate checks in a systematic manner

__ 5.5.4.7.1(a) Has the laboratory established standard operating procedures to ensure that reported data is free from transcription & calculation errors

__ 5.5.4.7.1(b) Has the laboratory established standard operating procedures to ensure that all quality control measures are reviewed & evaluated before data are reported

__ 5.5.4.7.1(c) Has the laboratory established SOP's for manual calculations & manual integrations

The following standards are applicable when computers, automated equipment, or micropmcessors are used for the acquisition, processing, recording, reporting, storage, or retrieval of environmental test data.

__ 5.5.4.7.2(a) Is all the laboratory's computer software documented in sufficient detail & suitably validated as being adequate for use

Note: Commercial off-the-shelf software in general use within their designated application range is considered to be sufficiently validated; however, laboratory software configurations or modifications must be validated

__ 5.5.4.7.2(b) Has the laboratory established & implemented procedures for protecting electronic data

Note: Must include the integrity & confidentiality of data entry or collection, data storage, data transmission, & data processing

__ 5.5.4.7.2(c) Are the laboratory's computers & automated equipment maintained to ensure proper functioning

__ 5.5.4.7.2(c) Are the computers & automated equipment provided with the environmental & operating conditions necessary to maintain the integrity of test data

__ 5.5.4.7.2(d) Has the laboratory established & implemented appropriate procedures for the maintenance of electronic data security (includes the prevention of unauthorized access to & unauthorized amendment of computer records)

COMMENTS:

5.5.5 EQUIPMENT

__ 5.5.5.1 Is the laboratory furnished with all items of equipment & reference materials required for the correct performance of tests for which accreditation is sought or maintained

__ 5.5.5.1 Does the laboratory ensure that equipment outside its permanent control meets the relevant requirements of these NELAC Standards

__ 5.5.5.2 Does the equipment & its software used for sampling & testing capable of achieving the accuracy required & comply with specifications relevant to the environmental tests concerned

__ 5.5.5.2 Does the laboratory calibrate and/or verify all equipment (including that used for sampling) to establish that it meets specified requirements & complies with the relevant standard specifications, before being put into service

Note: These Standards pertain to analytical support equipment, including balances, ovens, refrigerators, freezers, incubators, water baths, temperature monitoring devices (including thermometers & thermistors), & volumetric dispensing devices (if quantitative results are dependent on their accuracy).

__ 5.5.5.2.1(a) Is the support equipment maintained in proper working order

__ 5.5.5.2.1(a) Does the laboratory keep records of all repair & maintenance activities including service calls

__ 5.5.5.2.1(b) Is the support equipment calibrated or verified at least annually, using NIST-traceable references when available, over the entire range of use

__ 5.5.5.2.1(b) Are the results of calibration or verification for all support equipment within the specifications required for the application for which the equipment is used

__ 5.5.5.2.1(b) Does the laboratory remove support equipment from service or establish & maintain correction factors to correct all measurements for the deviation when the results of the annual calibration are not within the specifications required for the support equipment

__ 5.5.6.2.1 Does the laboratory ensure that the equipment used can provide the uncertainty of measurement needed

__ 5.5.6.2.1 Is the overall program of calibration and/or verification & validation of equipment designed & operated such that laboratory measurements are traceable to national standards of measurement

__ 5.5.6.2.2 When traceability to the International System of Units (SI) is not possible or not relevant, is there traceability to certified reference materials, agreed methods, or consensus standards

__ 5.5.6.2.2. Does the laboratory provide satisfactory evidence of correlation of results in those cases where traceability to national standards of measurement is not applicable(examples include: interlaboratory comparisons, proficiency testing, or independent analysis)

5.5.6.3 Reference Standards and Reference Materials

__ 5.5.6.3.1 Does the laboratory have a program & procedure for calibration of its reference standards

__ 5.5.6.3.1 Are the reference standards held by the laboratory calibrated by a body that can provide traceability (this applies to Class S standard weights or traceable thermometers)

Note: Where commercially available, this traceability must be to a national standard of measurement

__ 5.5.6.3.1 Are the reference standards held by the laboratory (e.g. Class S or equivalent weights, traceable thermometers) used for calibration only & for no other purpose

__ 5.5.6.3.1 If reference standards held by the laboratory are used for purposes in addition to calibration, has the laboratory demonstrated that their performance as reference standards has not been invalidated

__ 5.5.6.3.1 Are reference standards calibrated before & after any adjustments

__ 5.5.6.3.2 Are the reference materials traceable

Note: Where commercially available, this traceability must be to national or international standard reference materials or standards of measurement

__ 5.5.6.3.2 Are internal reference materials checked as far as is technically & economically practicable

__ 5.5.6.3.3 Are checks needed to maintain confidence in the calibration status or reference, primary, transfer, or working standards & reference materials carried out according to defined procedures & schedules

__ 5.5.6.3.4 Does the laboratory have procedures for the safe handling, transport, storage, & use of reference standards & reference materials in order to prevent contamination or deterioration & in order to protect their integrity

5.5.6.4 Documentation and Labeling of Standards, Reagents, and Reference Materials

__ 5.5.6.4 Does the laboratory have documented procedures for purchasing, receiving, & storing consumable materials that are used for its technical operations

__ 5.5.6.4(a) Does the laboratory retain records for all standards, reagents, & media including:

manufacturer/vendor
manufacturer's Certificate of Analysis or purity (if supplied)
date of receipt (at the laboratory)
recommended storage conditions
expiration date after which the material shall not be used (unless verified by the laboratory)

__ 5.5.6.4(a) Has the laboratory verified the purity of expired standards, reagents, & media prior to their continued use

__ 5.5.6.4(b) Does the laboratory label the original containers of standards & reagents (provided by the manufacturer) with an expiration date

__ 5.5.6.4(c) Does the laboratory maintain records on reagent & standard preparation

__ 5.5.6.4(c) Do the records on reagent & standard preparation indicate:
Traceability to purchased stocks or neat compounds
Reference to the method of preparation
Date of preparation
Expiration date
Preparer's initials

see 5.4.11.2.5.5(i)

__ 5.5.6.4(d) Do all containers of prepared standards & reagents bear a unique identifier, expiration date, & link to its specific preparation record

Omega - 552.2 Quite doing

__ 5.5.6.4(e) Are procedures in place to ensure that prepared reagents meet the requirements of the test method (see the scientific discipline & technology checklists for specific requirements)

Note: Reagents of appropriate quality must be selected and used. In methods where the purity of reagents is not specified, analytical reagent grade shall be used. Reagents of lesser purity than specified in the test method shall not be used. Checks of the container label to verify that the purity of the reagents complies with the test method must be documented.

X 5.5.6.4(f) Do containers of prepared reagents bear a preparation date HPLC mobile phases; Diquat extraction reagents

X 5.5.6.4(f) Is the expiration date for each prepared reagent defined on the container or documented elsewhere as indicated in the laboratory's quality manual or SOP

COMMENTS: HPLC mobile phases; Diquat extraction reagents

536.1

5.5.7 SAMPLING

__ 5.5.7.1 Does the laboratory have a sampling plan & procedures for sampling when it carries out sampling for substances, materials, or products for subsequent environmental testing

__ 5.5.7.1 Are the sampling plan & sampling procedures available at the location where the sampling is undertaken

__ 5.5.7.1 Whenever reasonable, are the sampling plans based on appropriate statistical methods

__ 5.5.7.1 Does the sampling process address factors to be controlled to ensure the validity of the environmental test results

__ 5.5.7.1 Where sampling (as in obtaining sample aliquots from a submitted sample) is carried out as part of the test method, does the laboratory use documented procedures & appropriate techniques to obtain representative subsamples

5.5.8.3.1(c)(2)(ii) Does the laboratory appropriately "qualify" the analysis data on the final report

5.5.8.3.1(d) Does the laboratory utilize a permanent chronological record (e.g. log book or electronic database) to document receipt of all sample containers

5.5.8.3.1(d)(1) Does this sample receipt log record the following:

- Client or project name
- Date & time of laboratory receipt
- Unique laboratory ID code
- Signature or initials of person making the entries

5.5.8.3.1(d)(2) During the log-in process, is sample collection information unequivocally linked to the log record or included as part of the log

5.5.8.3.1(d)(2)(i) Is the field ID code which identifies each sample container linked to the laboratory ID code in the sample receipt log

5.5.8.3.1(d)(2)(ii) Is the date & time of sample collection linked to the sample container and to the date & time of receipt in the laboratory

5.5.8.3.1(d)(2)(iii) Are the requested analyses (including applicable approved test method numbers) linked to the laboratory ID code

5.5.8.3.1(d)(2)(iv) Are any comments resulting from inspection for sample rejection linked to the laboratory ID code

5.5.8.3.1(d)(2) If the above information on field ID codes, laboratory ID codes, sample collection date & time, sample receipt date & time, requested analyses, and sample rejection comments is not linked to the sample receipt log, is this information recorded & documented elsewhere as part of the laboratory's permanent records, easily retrievable upon request, & readily available to the individuals who will process the sample

Note: Placement of laboratory ID number on the sample container is not considered a permanent record

5.5.8.3.1(e) Does the laboratory retain all documentation that is transmitted to the laboratory by the sample transmitter (e.g. memos or transmittal forms)

5.5.8.3.1(f) If utilized, does the laboratory maintain a complete chain-of-custody record

COMMENTS:

5.5.8 Sample Acceptance Policy

5.5.8.3.2 Does the laboratory have a written sample acceptance policy that clearly outlines the circumstances under which samples will be accepted

5.5.8.3.2 Is this sample acceptance policy made available to sample collection personnel

Sample policy needs to address when samples are field accepted if ice + given time

NOTE: LAB HAS ISSUE RETRIEVING SUP FOR SAMPLIN IN THE AREA

Does the sample acceptance policy include the following areas of concern:

5.5.8.3.2(a) Proper, full, & complete documentation, which includes:

- sample identification
- location of sample collection
- date & time of collection
- collector's name
- preservation type
- Sample type
- any special remarks concerning the sample

5.5.8.3.2(b) Proper sample labeling to include unique identification

5.5.8.3.2(b) Labeling system for the samples with requirements concerning the durability of the labels (water resistant) and the use of indelible ink

5.5.8.3.2(c) Use of appropriate sample containers

5.5.8.3.2(d) Adherence to specified holding times

5.5.8.3.2(e) Adequate sample volume to perform the necessary tests (including a matrix spike if this sample is randomly selected from the test batch for this purpose)

5.5.8.3.2(f) Procedures to be used if the sample shows signs of damage, contamination, or inadequate preservation

5.5.8.3.2 For samples that do not meet the laboratory's sample acceptance policy, is the data flagged in an unambiguous manner clearly defining the nature & substance of the variation

5.5.8.4 Does the laboratory have documented procedures & appropriate facilities to avoid damage, deterioration, or contamination to the sample during storage, handling, preparation, & testing

5.5.8.4 Does the laboratory follow any relevant instructions that may be provided with the test item

5.5.8.4 Does the laboratory maintain, monitor, & record any necessary specific environmental conditions whenever test items have to be stored or conditioned under such conditions

5.5.8.4(a) Are samples stored according to the conditions specified by preservation protocols

5.5.8.4(a)(1) For samples that require thermal preservation, does the laboratory store the samples under refrigeration which is:

- within 2 degrees Celsius of the specified preservation temperature, OR
- meets method-specific criteria, OR
- between 0-6 degrees Celsius when the specified storage temperature is 4 C

5.5.8.4(a)(2) Are samples stored away from all standards, reagents, food, & other potentially contaminating sources

5.5.8.4(a)(2) Are samples stored in such a manner as to prevent cross-contamination

5.5.8.4(b) Does the laboratory also store sample fractions, extracts, leachates, & other sample preparation products such that:

Note: These results must also be reported accurately, clearly, unambiguously, objectively, & in accordance with any specific instructions in the environmental test methods

5.5.10.1 Does the laboratory's test reports contain all information requested by the client & necessary for the interpretation of test results & all information required by the methods used

5.5.10.1 Is any test report information not reported to the client readily available in the laboratory that carried out the environmental test

Note: If the laboratory has a written agreement with the client, the test results may be reported in a simplified way

5.5.10.1 If not all required information is included in the laboratory's test reports, because the report is complying with specific regulatory reporting requirements or formats, does the laboratory still supply all the required information to its clients for preparing these reports

5.5.10.1 If the laboratory is operated by a facility whose sole function is to provide data to the facility management, does the laboratory have all required test report information readily available for review

Note: This information does not need to be included in a formal test report if the in-house facility laboratory is responsible for preparing the regulatory reports or the laboratory provides information to someone else within the organization for preparing the regulatory report

5.5.10.1 Does the facility management for the in-house laboratory ensure that all required report items are included in the facility's regulatory reports

Note: This may be a state-specific requirement; the primary accrediting authority is responsible for assessing whether the laboratory complies with such format or report requirements in the state where the laboratory resides

Does each laboratory report to an outside client include the following information (unless the laboratory has valid reasons for not doing so):

5.5.10.2 Test Reports and Calibration Certificates

5.5.10.2(a) A title (e.g. "Test Report," "Laboratory Results," "Certificate of Results")

5.5.10.2(b) Laboratory name & address

5.5.10.2(b) Phone number & contact person name to whom questions should be directed

5.5.10.2(b) Location where the test was conducted, if different from the laboratory's address

5.5.10.2(c) Unique identification of the test report (e.g. serial number) and of each page & the total number of pages

Note: The total number of pages may be listed on the first page of the report as long as subsequent pages are identified by the unique report identification number & consecutive numbers

Note: Each page of the test report can also be identified with the unique report identification number, with the pages identified as a number of the total report pages.(e.g. "3 of 10," "1 of 20")

Note: Other methods of identifying the pages in a test report are acceptable as long as it is clear that discrete pages are associated with a specific report & that the report contains a specified number of pages

5.5.10.2(d) Client name & address, where appropriate, & project name, if applicable

5.5.10.2(e) Identification of the test method used, or unambiguous description of any non-standard method used

5.5.10.2(f) Description & unambiguous identification of the tested sample, including the client identification code

5.5.10.2(g) Date of sample receipt by the laboratory, where critical to the validity & application of the test results

5.5.10.2(g) Date & time of sample collection

5.5.10.2(g) Date of performance test (analysis)

5.5.10.2(g) Time of sample preparation and/or analysis if the required holding time for either activity is less than or equal to 72 hours

5.5.10.2(h) Reference to the sampling plan & procedure used by the laboratory or other bodies, where relevant to the validity or application of the results

5.5.10.2(i) Environmental test results, with any failures identified, as appropriate

5.5.10.2(i) Identification as to whether data was calculated on a dry weight or wet weight basis

5.5.10.2(i) Identification of reporting units (e.g. ug/L & mg/kg)

5.5.10.2(l) Identification of any statistical packages used (especially for Whole Effluent Toxicity)

5.5.10.2(j) Name(s), function(s), & signature(s), or equivalent electronic identification(s), of the person(s) authorizing the test report

5.5.10.2(j) Date of issue for the test report

5.5.10.2(k) A statement to the effect that the results relate only to the samples

5.5.10.2(m) For laboratories already NELAP-accredited, certification that the test results meet all requirements of the NELAC Standards, or the reasons and/or justification if they do not

COMMENTS:

5.5.10.3 Test Reports

Where necessary for the interpretation of the test results, do the test reports include:

5.5.10.3.1(a) Any deviations from (e.g. failed quality control), additions to, or exclusions from the test method (e.g. environmental conditions)

5.5.10.3.1(a) Any non-standard conditions that may have affected the quality of results

INITIAL TEST METHOD EVALUATION

Notes: For Toxicity testing & Microbiology testing, the initial test method evaluation requirements are contained in Appendices D.2 & D.3, respectively.

For all test methods other than Toxicity & Microbiology, the requirements on Limit of Detection & Limit of Quantitation apply.

For evaluation of precision & bias of a Standard Method, the Demonstration of Capability procedure in Appendix C.1 to NELAC Chapter 5 applies. Otherwise, for a Non-Standard Method, the precision & bias measurements must evaluate the method across the analytical calibration range of the method.

NA

LIMIT OF DETECTION

___ C.3.1(a) Has the laboratory determined the Limit of Detection (LOD) for each target analyte of concern in the quality system matrix.

___ C.3.1(a) Does the laboratory include all sample processing steps of the analytical method in the determination of the LOD

___ C.3.1(b) Has the laboratory confirmed the validity of the LOD by qualitative identification of the analyte(s) in a quality control sample in each quality system matrix containing the analyte at no more than 2-3x the LOD for single-analyte tests and 1-4x the LOD for multiple analyte tests

___ C.3.1(b) Is the LOD verification performed on every instrument that is to be used for analysis of samples & reporting of data

___ C.3.1(c) Where a LOD study is not performed, does not laboratory not report a value below the Limit of Quantitation

Note: A LOD study is not required for any component for which spiking solutions or quality control samples are not available (e.g., Temperature), or when test results are not to be reported to the LOD (versus the Limit of Quantitation or working range of instrument calibration according to Appendices D.1.2, D.4.5, D.5.4, and D.6.6 to NELAC Chapter 5).

LIMIT OF QUANTITATION

___ C.3.2(a) Has the laboratory determined the Limit of Quantitation (LOQ) for each analyte of concern according to a defined, documented procedure

Note: The LOQ study is not required for any component or property for which spiking solutions or quality control samples are not commercially available or otherwise inappropriate (e.g., pH).

___ C.3.2(c) Has the laboratory confirmed the validity of the LOQ by successful analysis of a quality control sample, containing the analytes of concern in each quality system matrix 1-2 times the claimed LOQ

Note: A successful analysis is one where the recovery of each analyte is within the established test method acceptance criteria or client data quality objectives for accuracy.

Note: This single analysis is not required if the bias & precision of the measurement system are evaluated at the LOQ

COMMENTS:

NA

PRECISION AND BIAS

___ C.3.3(a) Has the laboratory evaluated the precision & bias of a Standard Method for each analyte of concern for each quality system matrix according to the single-concentration 4-replicate recovery study procedures in Appendix C.1 to NELAC Chapter 5 (see the technology-specific and scientific discipline checklists for these Standards)

Note: When the analyte cannot be spiked into the sample matrix and quality control samples are not commercially available, an alternate procedure documented in the quality manual is acceptable.

___ C.3.3(b) For laboratory-developed or non-standard test methods, does the laboratory have a documented procedure to evaluate precision & bias

Note: This Standard does not apply to test methods in use by the laboratory before July 2003

Note: Laboratory-developed test methods are defined as environmental test methods developed by the laboratory for its own use.

Note: Non-standard test methods are defined as methods not covered as standard methods.

___ C.3.3(b) Has the laboratory compared results of the precision & bias measurements for laboratory-developed & non-standard methods with:

criteria established by the client,
criteria given in the reference method, or
criteria established by the laboratory

___ C.3.3(b) Do the precision & bias measurements evaluate the laboratory-developed or non-standard test method across the analytical calibration range of the method

Note: Examples of systematic approach to evaluate precision & bias could be:

a validation protocol, such as the Tier I, Tier II, & Tier III requirements in US EPA Office of Water's Alternate Test Procedure (ATP) approval process, or

replicate analysis of quality control samples at or near the LOQ, at the upper range of the calibration, & at a mid-range concentration, processed on different days as 3 sets of samples through the entire measurement system for each analyte of interest (see Appendix C.3.3(b) to NELAC Chapter 5 for further details).

EVALUATION OF SELECTIVITY

___ C.3.4 Has the laboratory evaluated selectivity by following the checks established within the test method

Note: These evaluations may include mass spectral tuning, second-column confirmation, chromatography retention time windows, ICP inter-element interference checks, sample blanks, spectrochemical absorption or fluorescence profiles, co-precipitation evaluations, & electrode response factors

COMMENTS:

STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY:	LAB I.D. NO.:	DATE SURVEY COMPLETED:	SURVEYOR:
Energy Laboratories Inc.	E87641	February 14-16, 2007	[redacted]

PARAMETERS SURVEYED:

Drinking Water - Group I Unregulated Contaminants, Group II Unregulated Contaminants, Other Regulated Contaminants, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Radiochemistry, Synthetic Organic Contaminants; Non-Potable Water - Extractable Organics, General Chemistry, Metals, Radiochemistry, Volatile Organics; Solid and Chemical Materials - Extractable Organics, General Chemistry, Metals, Volatile Organics

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
1.	NELAC 5.4.3.2.1 – A master list or equivalent document control procedure has not been established to identify the current revision status and distribution of documents in the quality system and to preclude the use of invalid and/or obsolete documents (Not up-to-date to indicate which method versions are referred to or if methods are obsolete).		Completion Date 5.30.07
2.	NELAC 5.4.6.1 – Policy and procedures for selecting and purchasing of services and supplies are not available (All purchasing is made through Energy Lab-TM E87668; however, there is no reference for this procedure).		Completion Date 5/30/07
3.	NELAC 5.4.10.3 – When corrective action is needed, the laboratory does not identify potential corrective actions (e.g., EPA 8260 ICAL-SPCCs failed for CHBr3). CORRECTIVE ACTION REQUIREMENT IMPLEMENTED GCMS1 COMPLETED 4/2/07		SATURN GCMS3 & GCMS2 TO BE COMPLETED 5/1/07 (CAR 48)
4.	NELAC 5.4.12.1.5(b) – Not all information relating to the laboratory facilities equipment, analytical test methods, and related laboratory activities is documented (e.g., EPA 524.2/624 and EPA 8015 DRO – Test method not documented on ICAL's; SM2510B – ICAL not documented). ADDED TEST METHOD TO TARGET PROCESSING METHODS		COMPLETED 5/23/07
5.	NELAC 5.4.12.2.3 – The laboratory does not take equivalent measures to avoid loss or change of original data in records stored electronically (e.g., Spreadsheets used, not protected or printed to a PDF file were data could not be altered once completed).		ESTIMATED COMPLETION DATE OCTOBER 31, 2007
6.	NELAC 5.4.12.2.5.3 – Analytical records do not include all essential information to be associated with analysis (HACH 8000 start and end time of analysis (2 hr digestion)not recorded). START AND END TIMES OF ANALYSIS TO BE ADDED TO HACH SPREADSHEET (JIM HARRIS)		ESTIMATED COMPLETION DATE OCTOBER 31, 2007
7.	NELAC 5.4.12.2.5.3(c) – Analytical records do not include instrumentation identification or reference to such data (EPA 524.2/624/8260/8015-DRO – Incorrect instruments; EPA 8260 – Balance not identified for weighing soil samples). CARS IMPLEMENTED FOR ALL METHODS INTO OMEGA DATABASE		ESTIMATED COMPLETION DATE 5/1/07

SIGNATURE [redacted] Responsible Official

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5-22-07 DATE

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STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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Energy Laboratories Inc.	E87641	February 14-16, 2007	[redacted]

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8.	NELAC 5.4.12.2.5.3(g) – Analytical records do not include sample preparation (HACH8000 – Digestion time at 150°C for 2 hours not documented).	TO BE ADDED TO HACH SPREADSHEET (Jim HARRISON)	ESTIMATED COMPLETION DATE OCTOBER 31, 2007
9.	NELAC 5.4.12.2.5.3(i) – Analytical records do not include traceability to standard and reagent origin used (No documentation for: EPA 150.1 – Buffers used; SM5210B – Sodium sulfite, nitrification Inhibitor; SM4500NH3G – Sodium nitroprusside catalyst; EPA 552.2 – 10% Sulfuric Acid/Methanol derivatizing agent, sulfuric acid to acidify sample to pH<0.5).	CERTIFICATE OF ANALYSIS ORDERED 2/23/07 FOR BUFFERS. ORDERED SODIUM SULFITE AND NITRIFICATION INHIBITOR 4/4/07 SULFURIC ACID COA ORDERED 2/23/07	COMPLETED 4/4/07
10.	NELAC 5.4.13.2 –The time frame for notifying a client of events that cast doubt on the validity of the test results is not specified in the laboratory Quality Manual.		Completion Date 6/30/07
11.	NELAC 5.5.2.6(c)(1) – No clear evidence on file is available to demonstrate that each employee has read, understood, and is using the latest version of the laboratory's quality documentation that relates to his/her job responsibilities.		Completion Date 6/15/07
12.	NELAC 5.5.2.6(c)(3) – Analyst training files do not contain certification that each analyst has read, understood, and agreed to perform the most recent version of the test method.	ALL EMPLOYEES READ AND SIGNED CORRECTIVE NOTATIONS AND ETHICS STATEMENTS.	COMPLETED 3/23/07
13.	NELAC 5.5.2.7 - Data integrity training is not provided annually for current employees.		Completed 3/15/07
14.	NELAC 5.5.4.6 – Procedures for estimating uncertainty of measurement are not available.		Completion Date 6/30/07
15.	NELAC 5.4.12.2.5.3(m) – Analytical records do not include software documentation and verification (Formulas on spreadsheets used, e.g., ~~not validated~~).	By IT DEPARTMENT.	ESTIMATED COMPLETION DATE OCTOBER 31, 2007

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STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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Energy Laboratories Inc.	E87641	February 14-16, 2007	[redacted]

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16.	NELAC 5.5.5.2.1(e) – Mechanical volumetric dispensing devices and burettes (except Class A glassware) are not checked for accuracy on a quarterly use basis (Organic – Glass micro-liter syringes checked but not documented; EPA 504.1/505/8015 – Solvent dispenser for extraction not documented).	CAR IMPLEMENTED IN OMEGA	COMPLETED 4/9/07
17.	NELAC 5.5.5.2 – The laboratory does not calibrate and/or verify all equipment to establish that it meets specified requirements and complies with the relevant standard specifications, before being put into service (EPA 549.2/504.1/505 Sampling bottle volumetric not checked against a NIST traceable Class A volumetric).	SAMPLE BOTTLE CHCKED GRAVIMETRICALLY 3/5/07	COMPLETED 3/23/07 AND 3/5/07 RESPECTIVELY
18.	NELAC 5.5.9.2 (d) – The laboratory's Chemistry data do not indicate that the quality control protocols in the test methods manual are being followed (EPA 549.2 – improper sample container used for Diquat; sample bottle needs to be amber polyvinylchloride (PVC) high density).	AMBER PLASTIC IN USE	COMPLETED 4/2/07
19.	NELAC 5.5.6.4(f) – Container of prepared reagents does not bear to an expiration date (EPA 549.2 – Mobile phase, extraction reagents).		COMPLETED 2/23/07
20.	NELAC 5.5.8.3.1(a)(2) – Samples are not checked for proper preservation prior to or during sample preparation or analysis (EPA 524.2/624 – absence of free chlorine residual).	CAR IMPLEMENTED IN OMEGA	COMPLETED 4/9/07
21.	NELAC 5.5.8.4(d) – A standard operating procedure for the disposal of samples is not available (SOP in draft not implemented yet).		Completed ~~5/16/07~~
22.	NELAC 5.5.10.2(k) – The laboratory test report to an outside client does not includes a statement to the effect that the results relate only to the sample.		COMPLETED 5/23/07

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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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Energy Laboratories Inc.	E87641	February 14-16, 2007	[redacted]

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23.	NELAC 6.8(a)(1) – The laboratory does not post or display its most recent NELAP accreditation certificate or its NELAP-accredited fields of testing in a prominent place in the laboratory facility.		COMPLETED 2/14/07
24.	NELAC 5.1.1 – Additional requirements specified in the mandated test method or regulation have not been fulfilled (EPA 200.7/6010 – Instrument performance check calibration blank results not evaluated within 3 std. dev. of background mean; EPA 353.2 – Linear Dynamic Range not evaluated or verified at least every six months).		Completion Date 6/15/07
25.	NELAC 5.5.5.2.2.1(f) – The lowest calibration standard concentration is not the lower limit of quantitation (EPA 200.7/6010).		Completion Da 6/15/07
26.	NELAC 5.5.10.3.1(c) – Test report does not includes a statement of the estimated uncertainty of measurement, where applicable (EPA 200.7/6010 – The lowest calibration standard concentration is not the lower limit of quantitation).		Completion date 6/15/07

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STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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READ INSTRUCTIONS ON BACK CAREFULLY BEFORE COMPLETING

LABORATORY:	LAB I.D. NO.:	DATE SURVEY COMPLETED:	SURVEYOR:
Energy Laboratories Inc.	E87641	February 14-16, 2007	[redacted]

PARAMETERS SURVEYED:

Drinking Water - Group I Unregulated Contaminants, Group II Unregulated Contaminants, Other Regulated Contaminants, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Radiochemistry, Synthetic Organic Contaminants; Non-Potable Water - Extractable Organics, General Chemistry, Metals, Radiochemistry, Volatile Organics; Solid and Chemical Materials - Extractable Organics, General Chemistry, Metals, Volatile Organics

(1) I.D. PREFIX TAG	(2) SUMMARY STATEMENT OF DEFICIENCIES	(3) LABORATORY'S PLAN OF CORRECTION (Each corrective action should be cross-referenced to the appropriate deficiency)	(4) COMPLETION DATE
1.	NELAC 5.4.3.2.1 – A master list or equivalent document control procedure has not been established to identify the current revision status and distribution of documents in the quality system and to preclude the use of invalid and/or obsolete documents (Not up-to-date to indicate which method versions are referred to or if methods are obsolete).	These Master Lists Have Been added to the SOP Books.	Completion Date 5-30-07
2.	NELAC 5.4.6.1 – Policy and procedures for selecting and purchasing of services and supplies are not available (All purchasing is made through Energy Lab-TM E87668; however, there is no reference for this procedure). 6-6-07	This SOP Has Been Added to ELI CASPER's SOP Catalog	Completion Date 5/30/07
3.	NELAC 5.4.10.3 – When corrective action is needed, the laboratory does not identify potential corrective actions (e.g., EPA 8260 ICAL-SPCCs failed for CHBr3).	CORRECTIVE ACTION REQUIREMENT IMPLEMENTED GCMS1 COMPLETED 4/2/07	SATURN GCMS3 GCMS2 TO BE COMPLETED 5/1/07 (CAR 48)
4.	NELAC 5.4.12.1.5(b) – Not all information relating to the laboratory facilities equipment, analytical test methods, and related laboratory activities is documented (e.g., EPA 524.2/624 and EPA 8015 DRO – Test method not documented on ICAL's; SM2510B – ICAL not documented).	ADDED TEST METHOD TO TARGET PROCESSING METHODS	COMPLETED 2/23/07
5.	NELAC 5.4.12.2.3 – The laboratory does not take equivalent measures to avoid loss or change of original data in records stored electronically (e.g., Spreadsheets used, not protected or printed to a PDF file were data could not be altered once completed).	ELI-CASPER is working with its IT Department IN ORDER to accomplish this task. ELI will increase Electronic Security to Prevent Any Chance of Records change.	ESTIMATED COMPLETED DATE OCTOBER 31, 2007
6.	NELAC 5.4.12.2.5.3 – Analytical records do not include all essential information to be associated with analysis (HACH 8000 start and end time of analysis (2 hr digestion)not recorded).	START AND END TIMES OF ANALYSIS TO BE ADDED TO HACH SPREADSHEET [redacted]	ESTIMATED COMPLETION DATE OCTOBER 31, 2007
7.	NELAC 5.4.12.2.5.3(c) – Analytical records do not include instrumentation identification or reference to such data (EPA 524.2/624/8260/8015-DRO – Incorrect instruments; EPA 8260 – Balance not identified for weighing soil samples).	CARS IMPLEMENTED FOR ALL METHODS INTO OMEGA DATABASE	ESTIMATED COMPLETION DATE 5/1/07

SIGNATURE: [redacted] Responsible Official — 5-22-07 DATE — Page 1 of 4

DH FORM 1137, 3/97

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STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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8.	NELAC 5.4.12.2.5.3(g) – Analytical records do not include sample preparation (HACH8000 – Digestion time at 150°C for 2 hours not documented).	TO BE ADDED TO HACH SPREADSHEET [redacted]	ESTIMATED COMPLETION DATE OCTOBER 2007
9.	NELAC 5.4.12.2.5.3(i) – Analytical records do not include traceability to standard and reagent origin used (No documentation for: EPA 150.1 – Buffers used; SM5210B – Sodium sulfite, nitrification Inhibitor; SM4500NH3G – Sodium nitroprusside catalyst; EPA 552.2 – 10% Sulfuric Acid/Methanol derivatizing agent, sulfuric acid to acidify sample to pH<0.5).	CERTIFICATE OF ANALYSIS ORDERED 3/23/07 FOR BUFFERS. ORDERED SODIUM SULFITE AND NITRIFICATION INHIBITOR 4/04/07 SULFURIC ACID COFA ORDERED 2/23/07	COMPLETED 4/4/07
10.	NELAC 5.4.13.2 –The time frame for notifying a client of events that cast doubt on the validity of the test results is not specified in the laboratory Quality Manual.	This will be Added to the QAP.	Completion Date 6/30/07
11.	NELAC 5.5.2.6(c)(1) – No clear evidence on file is available to demonstrate that each employee has read, understood, and is using the latest version of the laboratory's quality documentation that relates to his/her job responsibilities.	This Language will be added to the SOP SignOff Sheets & Any Training SignOff Sheets.	Completion Date 6/15/07
12.	NELAC 5.5.2.6(c)(3) – Analyst training files do not contain certification that each analyst has read, understood, and agreed to perform the most recent version of the test method.	ALL EMPLOYEES READ AND SIGNED CORRECTIVE NOTATIONS AND ETHICS STATEMENTS.	COMPLETED 3/23/07
13.	NELAC 5.5.2.7 - Data integrity training is not provided annually for current employees.	This Training Has Been Done.	Completed 3/15/07
14.	NELAC 5.5.4.6 – Procedures for estimating uncertainty of measurement are not available.	This SOP Has Been Finalized and is In Place C-SO-018-00.	Completion Date 6/30/07
15.	NELAC 5.4.12.2.5.3(m) – Analytical records do not include software documentation and verification (Formulas on spreadsheets used, e.g., not validated).	TO BE COMPLETED By IT DEPARTMENT.	ESTIMATED COMPLETION DATE OCTOBER 31, 200

SIGNATURE: [redacted] Responsible Official 5-22-07 DATE

DH FORM 1137, 3/97

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STATE OF FLORIDA DEPARTMENT OF HEALTH
STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION

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16.	NELAC 5.5.5.2.1(e) – Mechanical volumetric dispensing devices and burettes (except Class A glassware) are not checked for accuracy on a quarterly use basis (Organic – Glass micro-liter syringes checked but not documented; EPA 504.1/505/8015 – Solvent dispenser for extraction not documented).	CAR IMPLEMENTED IN OMEGA	COMPLETED 4/9/07
17.	NELAC 5.5.5.2 – The laboratory does not calibrate and/or verify all equipment to establish that it meets specified requirements and complies with the relevant standard specifications, before being put into service (EPA 549.2/504.1/505 Sampling bottle volumetric not checked against a NIST traceable Class A volumetric).	SAMPLE BOTTLE CHCKED GRAVIMETRICALLY 3/5/07	COMPLETED 3/3/07 AND 3/5/07 RESPECTIVELY
18.	NELAC 5.5.9.2 (d) – The laboratory's Chemistry data do not indicate that the quality control protocols in the test methods manual are being followed (EPA 549.2 – improper sample container used for Diquat; sample bottle needs to be amber polyvinylchloride (PVC) high density).	AMBER PLASTIC IN USE	COMPLETED 4/2/07
19.	NELAC 5.5.6.4(f) – Container of prepared reagents does not bear to an expiration date (EPA 549.2 – Mobile phase, extraction reagents).	These Containers are Now Labeled with an Expiration Date	COMPLETED 2/23/07
20.	NELAC 5.5.8.3.1(a)(2) – Samples are not checked for proper preservation prior to or during sample preparation or analysis (EPA 524.2/624 – absence of free chlorine residual).	CAR IMPLEMENTED IN OMEGA	COMPLETED 4/9/07
21.	NELAC 5.5.8.4(d) – A standard operating procedure for the disposal of samples is not available (SOP in draft not implemented yet).	SOP C-30-010-00 - WASTE DISPOSAL is now in Place.	Completed 3/6/07
22.	NELAC 5.5.10.2(k) – The laboratory test report to an outside client does not includes a statement to the effect that the results relate only to the sample.	This Language is Now on all Reports	COMPLETED 3/3/07

SIGNATURE: [redacted] Responsible Official — 5-22-07 DATE — Page 3 of 4

DH FORM 1137, 3/87

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STATE OF FLORIDA DEPARTMENT OF HEALTH
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23.	NELAC 6.8(a)(1) – The laboratory does not post or display its most recent NELAP accreditation certificate or its NELAP-accredited fields of testing in a prominent place in the laboratory facility.	The most Recent Certificate is now posted IN the Main Reception Area.	COMPLETED 2/14/07
24.	NELAC 5.1.1 – Additional requirements specified in the mandated test method or regulation have not been fulfilled (EPA 200.7/6010 – Instrument performance check calibration blank results not evaluated within 3 std. dev. of background mean; EPA 353.2 – Linear Dynamic Range not evaluated or verified at least every six months).	ELI-Easter will Correct these Deficiencies Per Method & Cited Nelac Standards	Completion Date 6/15/07
25.	NELAC 5.5.5.2.2.1(f) – The lowest calibration standard concentration is not the lower limit of quantitation (EPA 200.7/6010).	ELI Easter will Correct this in compliance with the cited Nelac Standard.	Completion date 6/15/07
26.	NELAC 5.5.10.3.1(c) – Test report does not includes a statement of the estimated uncertainty of measurement, where applicable (EPA 200.7/6010 – The lowest calibration standard concentration is not the lower limit of quantitation).	Corrective Action on Deficiency #23 will Correct this as well.	Completion date 6/15/07

SIGNATURE: [redacted] Responsible Official

5-22-07 DATE

DH FORM 1137, 3/97

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United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number
0800-0497

Case Title:
Energy Laboratories, Inc.

Reporting Office:
Denver, CO, Area Office

Subject of Report:
Interview of [redacted] Florida Department of Health

Activity Date:
August 1, 2011

Reporting Official and Date:
[redacted]
Special Agent
18-MAY-2012, Signed by: [redacted]

Approving Official and Date:
[redacted]
Special Agent in Charge
21-MAY-2012, Approved by: [redacted]
Assistant Special Agent in Charge

SYNOPSIS

On August 1, 2011, [redacted] Chemist III for the Florida Department of Health (FDOH) was interviewed in connection with this investigation.

DETAILS

On August 1, 2011, Environmental Protection Agency (EPA) Criminal Investigation Division (CID) Special Agent (SA) [redacted] and U.S. Department of Justice (DOJ) Environmental Crimes Section (ECS) attorney [redacted] traveled to Gainesville, Florida to interview [redacted] Chemist III with the FDOH Bureau of Laboratories (BOL) and National Environmental Laboratory Assessment Committee (NELAC) assessor.

After identifying themselves through the display of credentials [redacted] agreed to an interview. The following information is a summary of the statements made by [redacted] during the interview:

[redacted] advised that [redacted] holds the position of Chemist III at the FDOH, is a lab inspector for the Lab Certification Program (LCP) and serves as a laboratory consultant.

[redacted] stated the FDOH LCP currently has four laboratory consultants including himself. [redacted] believes the optimum number of consultants for the LCP to have would be eight.

[redacted] has a Bachelor of Science Degree in Chemistry from the University of Arizona and earned PhD in Analytical Chemistry from Michigan State in 1982.

From 1982 to approximately 1984, [redacted] was employed at Jet Propulsion Laboratory located in California as a Research Associate.

For approximately four months In 1984 [redacted] was employed as a Chemist for JM Montgomery Consulting Engineers, an environmental consulting company. [redacted] reported [redacted] was running EPA Methods 624 and 625.

From 1984 through 1992, [redacted] was employed at Unical Science Technical Division as an analytical chemist working on analytical methods development and training. The company worked with the petroleum industry (i.e. natural gas and diesel) and [redacted] worked as an independent quality control coordinator for that job. The company participated in the shale program in exchange for government assistance.

From 1992 to the current, [redacted] has been employed with the FDOH in several positions. At one time [redacted] was the Program Administrator for the Environmental Laboratory Certification Program. [redacted] advised that in the late 1990s [redacted] was reclassified to a Chemist position.

[redacted] stated [redacted] attended EPA's Certification Officers training in Cincinnati, Ohio. [redacted] explained it is a week long course and focuses on chemistry and microbiology. [redacted] obtained his certification in 1993. [redacted] stated [redacted] completes the refresher training every five years, although the last refresher certification course [redacted] attended was in 2003. [redacted] was unable to go to the recertification course because of budgetary constraints.

[redacted] was asked how FDOH decided which labs to assess and when. [redacted] explained that assessors could choose their own assignments. The Accrediting Authorization Management System (AAMS) is a database used to generate two lists: 1) "Ready For Survey" which consists of applications submitted by new laboratories for first time certification or a laboratory requesting certification for new/additional analytes; or 2) "Due List" which consists of laboratories that are due for recertification (inspection required once every two years.) [redacted] advised that a laboratory could be reported on both lists in which case an assessment for the overall certification and new analyte would be completed at the same time.

[redacted] stated that applications are reviewed by in-house professional staff; Chemist II and Biological Scientist II. The applications are reviewed for completeness, for proficiency testing (PT) results. Labs must have all PTs ready for at least one analyte to be eligible to schedule an assessment.

[redacted] advised that when scheduling assessments, FDOH selects several labs within a geographical area so the assessments are completed within the week.

A full service lab is a lab that has microbiology, organic and inorganic chemistry. If a lab is a full scope, large lab then a full assessment team is utilized for the assessment. A large lab may have as many as 40 pages of analytes for certification and would require two to three assessors. Likewise if a lab has 25 to 30 pages of analytes and there are a number of different methods to review it may also require a larger assessment team. The number of methods and analytes determines how large the assessment team needs to be. [redacted] advised that documentation relating to the assessments, including the assessment checklists, were in FDOH's archives. [redacted] stated that FDOH keeps binders containing PT data, lab plan of correction and lab certification notebooks are maintained for each lab.

[redacted] was asked if [redacted] recalled performing an assessment at ELI Casper. [redacted] recalled conducting assessments at ELI Casper on two occasions; the most recent in April 2009 and two years prior to that either in 2006 or 2007. [redacted] advised that ELI Casper requires two physical assessments because the main and radiological labs are not on contiguous property. [redacted] advised that general chemistry at ELI Casper would have been assessed each time.

[redacted] was asked why FDOH performed assessments at ELI Casper. [redacted] explained that ELI Casper chose Florida as the National Environmental Laboratory Accreditation Program (NELAP) accreditation body. Other states that were also accreditation bodies were Utah, California and

Oregon; all which are closer to Wyoming. [redacted] was asked why [redacted] thought ELI Casper chose Florida as its accreditation body. [redacted] believed the reason Florida was selected was for the customer service and resources. Florida had the resources to perform an on-site inspection within four to five months after submitting an application. [redacted] advised that laboratories pay for certification fees and the travel expenses incurred by the assessors when they travel to the lab to perform an assessment.

[redacted] believed [redacted] was the assessor who performed ELI Casper's first assessment for both the radiochemistry and general chemistry labs. [redacted] advised it is the standard operating procedure (SOP) at the FLDOH to rotate the inspections throughout the chemists but because there are only four chemists there will be repeated instances of assessors performing an assessment at the same lab.

[redacted] stated tha[redacted] overall impression of the ELI Casper lab in 2004 was "pretty good." [redacted] recalled that ELI Casper had a radiochemist in charge that definitely knew about RAD. [redacted] stated the radiochemist was a former EPA or Department of Energy employee. [redacted] recalled ELI Casper's RAD lab did have some things that needed to be corrected.

[redacted] was asked if unannounced assessments were ever done at laboratories. [redacted] advised that assessments are always announced; there are no unannounced assessments. If a complaint was received on a particular laboratory, an "extraordinary" inspection is scheduled.

[redacted] advised that after scheduling is approved the assessor will call and speak to the lab's contact person. [redacted] was unable to recall who that was at ELI Casper but stated it was usually the Quality Assurance (QA) officer. Once the assessor and the lab contact agree on the dates for the inspection, the FDOH sends the lab a courtesy announcement with the scheduled date of the assessment, the names of the assessors who will be participating, copies of checklists and notice the assessors will call one week prior to the assessment. This announcement is usually done by e-mail.

Once at the lab for the assessment, the standard is to have an Opening Conference with the lab managers and other lab employees who the lab managers may want to attend. Assessors present their credentials and explain the purpose of the assessment. Assessors inquire who the technical directors are and coordinate a schedule for the assessment. Confidentiality forms are provided to the lab management. Assessors review the background of the new technical director to make sure they have the appropriate education. Educational transcripts are reviewed. If the lab does not have the information available it (lab) is given a deficiency or are "strongly hinted" they should have it. [redacted] stated that this (not having the educational background documentation available on key lab personnel) "happens rarely." [redacted] advised that NELAP provides a "one time pass" to a technical director who does not have the educational background but had the experience; "they are grandfathered in."

[redacted] advised that ELI Casper management "brought everybody in," approximately 15 to 20 people to the opening conference. [redacted] was the QA Manager at ELI Casper and [redacted] was the Interim QA Manager in 2009. [redacted] believes that in 2009, the ELI Billings lab was assessed on April 13-15 and ELI Casper on April 16-17. Because the NELAP assessment was

conducted by a team of assessors, each assessor took an area (topic) of the assessment

[redacted] was asked to discuss calibration and calibration records/logs in a laboratory. [redacted] explained that some tests require calibration of lab equipment. In general instrument calibration is required on every batch of samples analyzed. A batch is a group of 20 samples (samples are from different clients) all being analyzed the same way. In general chemistry there is usually three standards and a blank that are analyzed as part of the quality control when running a batch. Some methods require more. [redacted] stated that the Total Suspended Solids (TSS) analysis does not require calibration every 20 samples run but the Nitrates analysis does. [redacted] described the sequence of a batch run as follows: Calibrate, calibration verification, run test/analysis, check calibration. [redacted] stated NELAP describes a batch as samples run within a 24-hour period.

[redacted] explained that if a batch is run and the calibration fails the entire batch of samples are supposed to be re-run. A "corrective action" report (CAR) is supposed to be generated. [redacted] explained that a CAR is a procedure which is used to document verification standards. Also, a continuing calibration verification (CCV) is completed at the end of each batch. Some methods require a CCV every ten samples. According to [redacted] if an analysis fails, is re-run and is then analyzed successfully, the laboratory is supposed to report both results to the client.

[redacted] was asked if calibration records were important. [redacted] replied calibration records are important and relied upon by NELAP. [redacted] stated NELAP relies on the laboratory for the information recorded on the calibration logs. [redacted] further advised that all areas reviewed during an assessment are considered important. The laboratory is responsible for reporting accurately and honestly. "The onus is on the lab." The lab is required to show the assessors the calibration logs which are supposed to include initials, dates, etc. [redacted] was asked if there would be a problem if an analyst at a lab plugged in numbers into the calibration log rather than taking actual readings. [redacted] replied that would be a problem because the analyst is writing a result that was not measured or recorded. Even though the number might have been correct there is no certainty/reliability with that number.

[redacted] was asked what [redacted] would have done had someone had told [redacted] at the time of the assessment that values on a calibration log were falsified. [redacted] replied [redacted] would look at the Quality Control (QC) data and it would cause [redacted] to look closer at things during the remainder of the assessment. If someone had falsified information, there is nothing in the NELAC standards to site during an assessment. [redacted] advised that in the event of fraud assessors are supposed to report the incident to the director of the program (in FDOH's case it would be reported to Director [redacted]

ECS [redacted] asked [redacted] to explain the process used to select an analyst to be interviewed by an assessor during an assessment. [redacted] advised the laboratory would select the analyst. It is supposed to be the analyst whose initials are on the bench sheet; the analyst who performs the test. Demonstrations are not performed in the presence of the assessor. The analyst must demonstrate capability and it should be completed prior to the assessment. The data is then shown to the assessor.
[redacted] advised that assessors do not select lab employees "at random" to interview. While walking through the lab during an assessment the assessor may ask an analyst to describe how a test is run.

[redacted] was asked if [redacted] has ever been directed by a manager to speak to a specific employee regarding a test. [redacted] replied [redacted] had not been directed in that way.

[redacted] explained that in general chemistry there are many traceability standards that labs are responsible for. [redacted] went on to explain that a lab should be able to reconstruct a sample's history through an assigned sample identification (ID) code. This sample history should include and reflect the following information: when the sample was received; did the sample meet the necessary requirements for the test, i.e. sample volume; sample type; holding time requirements; date/time the was sample run; standards associated with the sample ID; QC analytical run associated with the sample ID; and the final test (lab results) report. Additional traceability data would include: original observation of the data, calculations and formula used for the calculations (takes raw data and transforms it to the final test result that is reported to the client.)

ECS [redacted] showed [redacted] a copy of the alleged falsified calibration log generated by an employee at ELI Casper. [redacted] looked at the document and stated it appeared to be a balance calibration log. [redacted] explained that a balance is considered "support equipment" and is a significant piece of equipment because it is used as part of the operation of the lab. [redacted] stated the problem with a falsified is that the regulating agencies and its customers rely on the laboratory to report truthfully. In reviewing the falsified calibration logs [redacted] stated [redacted] would question the value in instances where the value was always the same. [redacted] said that if a software program caused the error there would be a validation standard requirement in NELAC that relates to the software errors. ECS [redacted] told [redacted] that it was not a software error and that witnesses stated an individual cut and pasted the information (values) into the spreadsheet.

ECS [redacted] asked [redacted] if [redacted] believed [redacted] is tougher during an assessment of a Florida lab as opposed to other labs around the country. [redacted] replied [redacted] did not believe that was true.

ECS [redacted] asked [redacted] about detection limits and whether or not they are important. [redacted] replied that detection limits are important because EPA wants to ensure that certified laboratories can detect at permit limits. [redacted] further stated that EPA and its customers "want to know the water is safe to drink." [redacted] explained that if a laboratory failed to meet the required sensitivity of an analysis but falsely reported to the client that it did then it is a problem. If the lab is fraudulently reporting to its clients it would be a violation of Florida Statutes and it would be grounds to decertify the lab.

[redacted] was asked if EPA relies on NELAP assessments of laboratories for certification purposes. [redacted] advised [redacted] expects that EPA does rely on NELAP assessments.

[redacted] was asked about requirements for labs to maintain data and records associated with the sample analyses that are run. [redacted] said [redacted] instructs labs to keep all records because their data could be misused by their customers.

ECS [redacted] asked [redacted] what [redacted] thought of a lab that was cutting and pasting its QA data. [redacted] stated that if [redacted] suspected that was happening in a lab [redacted] would review the bench sheet and lab report and would ask if a qualifier would be placed on the report. During an assessment, [redacted] stated [redacted] would ask for the supporting data runs. An analyst would provide [redacted] with the

data runs.

ECS [redacted] stated that in 2009 ELI Casper's RAD certification was renewed by EPA Region 8 in spite of repeat deficiencies. [redacted] stated that if the lab provided documentation to support that deficiencies had been corrected then the lab could be certified. [redacted] then stated that three things are reviewed when determining if to recertify a lab where deficiencies are discovered: 1) "Numerous" (how many deficiencies were found?); 2) "Persistent" (is this a lab-wide problem?); 3) "Severe" (not meeting EPA's regulatory detection limits.)

EPA [redacted] asked [redacted] if there would be a problem with a lab that was running their PT samples multiple times and averaging the results rather than running the samples exactly as they would on a day-to-day basis. [redacted] stated that if a lab was running the PT samples multiple times and averaging the results that would result in a finding during the assessment.

EPA [redacted] asked [redacted] who determines if a matter will be referred to an administrative lawyer at FDOH. [redacted] replied that the assessor would recommend administrative action because it is in violation of a Florida statute and it would be referred to the attorney for an administrative complaint. According to [redacted] Director [redacted] has stated that "any one finding would be sufficient to recommend (an) administrative complaint" however, "it is not usually done."

On August 3, 2011, SA [redacted] called [redacted] to ask [redacted] a follow-up question as requested by ECS [redacted] SA [redacted] asked [redacted] if [redacted] remembered who within the assessment team reviewed the balance calibration logs. [redacted] stated that [redacted] was the team leader for the assessment. [redacted] "could have reviewed the logs" but [redacted] was not certain.

[redacted] was unable to recall if anyone mentioned there was being a problem with the calibration logs at the time of the assessment. [redacted] could not recall if the subject came up during the closing meeting.

[redacted] explained that [redacted] was gone for two and one-half years on a tour of duty with the U.S. Navy but has since returned to [redacted] position at FDOH. [redacted] stated that [redacted] was conducting an assessment in Jacksonville, Florida this week.

[redacted] was unable to recall if in either 2007 or 2009, while conducting the ELI Casper assessment, [redacted] and [redacted] became ill. [redacted] explained they began the week conducting the assessment at the ELI Billings, Montana lab (Monday through Wednesday). When they arrived at Casper [redacted] and [redacted] were ill. [redacted] believes they may have covered some parts of the assessment but not as much as they would normally because they were ill. [redacted] was not aware they were ill until the end of the assessment. [redacted] suggested that SA [redacted] speak to [redacted] to determine if [redacted] reviewed the logs.

After providing the above information, [redacted] advised that after giving it more thought, the above information regarding [redacted] and [redacted] occurred during the 2009 assessment and not the 2007 assessment. [redacted] then stated that [redacted] did not believe [redacted] conducted the 2007 assessment but was not sure.

[redacted] said that after his interview with SA [redacted] and ECS [redacted] on August 1st, [redacted] looked up the ELI Casper's assessment information and confirmed that [redacted] was the lead assessor for the assessment. [redacted] stated there were things that ELI Casper needed to correct, but "it became a larger issue in 2009." [redacted] further stated that the deficiencies were all/most repeats from 2007.

[redacted] stated that [redacted] was not working at ELI Casper in 2009. [redacted] was the "Technical Director" at ELI Casper. The findings for the 2007 assessment had not been corrected in 2009. [redacted] stated [redacted] was surprised to see that [redacted] was no longer with ELI Casper. [redacted] advised that [redacted] "was extremely knowledgeable. [redacted]t had training from the Department of Energy." [redacted] stated that at the time [redacted] was at ELI Casper there was another RAD chemist (name unknown) that had come over to ELI Casper from Core Labs when Core labs shut down.

United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number
0800-0497

Case Title:
Energy Laboratories, Inc.

Reporting Office:
Denver, CO, Area Office

Subject of Report:
Receipt of NEIC's Electronic Data Analysis

Activity Date:
April 23, 2012

Reporting Official and Date:
[redacted], SA
24-APR-2012, Signed by: [redacted], *SA*

Approving Official and Date:
[redacted] SAC
25-APR-2012, Approved by: [redacted], *ASAC*

SYNOPSIS

On April 23, 2012, a memorandum summarizing NEIC's Electronic Data Analysis of Energy Laboratories, Inc. (ELI) was received.

DETAILS

In early April 2012, Special Agent (SA) [redacted], Environmental Protection Agency (EPA) Criminal Investigation Division (CID) became aware that a written report from the National Enforcement Investigations Center (NEIC) documenting NEIC's electronic data analysis had not been received. On April 3, 2012, SA [redacted] spoke with NEIC's Information Technology Specialist (ITS) [redacted] who confirmed a report had not been completed for data analysis of Energy Laboratories, Inc., Casper, Wyoming. SA [redacted] then spoke with [redacted], Criminal Program Coordinator at NEIC and requested a written summary.

It should be noted that NEIC's ITS [redacted] was present during the execution of the search warrant and was responsible for imaging lab instrument data and ELI's LIMS system. During pre-search warrant meetings, ITS [redacted] had assured SA [redacted] that the forensically seized image of ELI Casper's LIMS system could be recreated at NEIC's computer lab so that it would function exactly as it did at ELI Casper. This would have allowed witnesses to demonstrate the exact steps taken when changing values in ELI Casper's LIMS system. This was not possible because NEIC was unable to recreate ELI Casper's LIMS system.

On April 23, 2012, SA [redacted] traveled to NEIC and received a Memorandum dated April 19, 2012, summarizing NEIC's data analysis of ELI Casper's laboratory information management system (LIMS). A copy of said memorandum is attached to this report.

ATTACHMENT

NEIC's Electronic Data Analysis dated April 19, 2012

April 19, 2012

MEMORANDUM

SUBJECT: Environmental Laboratories, Inc.
NEIC Project No. RP1210
CID Case No. 0800-0497

FROM: [redacted]

TO: Files

In March of 2012, EPA CID Special Agent [redacted] requested that NEIC provide a summary of data analysis activities done at NEIC's Electronic Data Analysis Laboratory (EDAL) relating to the analysis of Environmental Laboratories, Inc.'s (ELI) laboratory information management system (LIMS). Below is a summary of those activities.

CID requested that the NEIC EDAL get the ELI LIMS system that was computer forensically imaged during the search warrant to run as it did at the ELI laboratory. The ELI LIMS system is called Omega and was written by a company named Khemia based in Denver, Colorado. According to their web site www.khemia.com , the Omega LIMS is designed for the environmental laboratories industry.

> *"Omega LIMS is a fully integrated relational database written in Microsoft Access 8.0 (Office 97). It offers the full power of an interactive database management system capable of organizing, tracking, and presenting information in a concise and professional manner. Omega was designed to help you manage your laboratory, not dictate how you manage it. Written using standard laboratory terminology, Omega is user-friendly and intuitive. Enter it, track it, report it, bill it...just push a button and go."*

In addition, NEIC Information Technology Specialist [redacted] had a conversation with ELI employees [redacted] and [redacted] during the search warrant about the Omega LIMS. They stated that the LIMS application is written in MS Access and the data is stored in a SQL 2000 database.

During the search warrant, [redacted] of ELI did a backup of the databases of interest on the SQL server.

1. Omega - Omega2007-10-30-1815.bak (18 GB)
2. Rad Chem - radchem.bak (.1 GB)
3. Meta Data - MetaData.bak (6 GB)
4. Water Calcs -WaterCalcs.bak (5 MB)

After the search warrant, a standalone MS Windows 2000 Server and MS SQL Server were built at the NEIC EDAL. The databases listed above from the ELI LIMS were restored to the NEIC EDAL MS SQL server and successfully linked to MS Access. However, the ELI LIMS application never successfully functioned as it functioned at the ELI Laboratory because the correct front end – back end connections could not be recreated. Moreover, the system could not be used exactly how it was used at the ELI Laboratory. A user could not operate the LIMS application as it was designed to track samples, perform searches, or print reports.

Although the LIMS application did not function, analysis of the LIMS data was still possible by using MS Access. Analysis involved determining how the ELI LIMS system was organized, how it functioned, and how reports (Attachment A.pdf) were generated. Again, since the LIMS did not function as a standalone application, 90 plus MS Access Tables (Attachment B.bmp), 200 plus MS Access Queries (Attachment C.doc), 60 plus MS Access Forms (Attachment D.bmp), and 20 plus MS Access Reports were reviewed to determine which tables, queries, forms, and reports were used to generate reports.

Table review involved opening a table reviewing its design and noting:

Number of records.
Field names.
Primary key field names.
Redundant field names.
Table normalization (was the table designed to allow for a database structure that was suitable for general-purpose querying and free of certain undesirable characteristics – insertion, update, and deletion anomalies – that could lead to a loss of data integrity).

Query review involved opening each query, looking at its design (Attachment C), and noting:

Tables used.
Relationship of tables.
Relationship of linked fields in different tables.
Query results.
Type of query (select, make table, update, delete, union).

Form review involved opening each form, reviewing its design, and noting:

Form headers.
Field headers.
Table or query the form was based on.
Form results or errors.

Report review involved opening each report, reviewing its design, and noting:

Report headers.
Field headers.
Table or query the report was based on.
Report results or errors.

At the request of NEIC Chemist [redacted] data relating to RA226 and RA228 was analyzed. The results of three specific queries were forwarded to [redacted] that satisfied his request. The following is an example of a query that selects records relating to RA226 only. The query contained the following fields:

BatchID, BatchSampID, SID, SampID, RadGroupID, InstrumentID, Analyst, PrecipDate, RunDate, RunID, SampSeqNo, SampType, Result, Units, Volume, TareWt, FinalWt, Recovery, AnalyssisStartDate, AnalysisDate, CountTime, GrossCounts, NetCPM, BatchSampCounts.IngrowthTime, IngrowthFactor, Comments, StdEfficiency, qselClientsWorkOrders.ClientID, qselClientsWorkOrders.SampID, qselClientsWorkOrders.Industry, qselClientsWorkOrders.Program, qselClientsWorkOrders.ClientRep, qselClientsWorkOrders.Company, qselClientsWorkOrders.Address, qselClientsWorkOrders.City, qselClientsWorkOrders.State, qselClientsWorkOrders.Zip, qselClientsWorkOrders.InvPhone

The following tables and queries were joined using common fields:

Batches
BatchSamples
qselClientsWorkOrders
qseNEIC226ReportsWithCalcs

Results were selected where RadGroupID = RA226 or RA226-CBM and the analysis date was greater than 9/1/2005. A similar query was done for RA228.

All the queries that satisfied Richard Ross' request are contained in Attachment E.doc. However, many additional queries were written, tested, and put through a QA/QC process before the last set was completed. The QA/QC process included but was not limited to the following:

Are the correct tables included?
Are the fields linked correctly?
Do the query results match hard copy reports?

Query results were exported to MS Excel spreadsheet format and delivered to Richard Ross.

LABORATORIES

RADIOCHEMISTRY DEPARTMENT
RADIUM 226 BY PRECIPITATION

228
226
Radium

BATCH ID
tmp Bkgd

Batch Information

Batch ID:	RA226-2014
Rad Group ID:	RA226
Instrument ID:	Berthold 770-1
Analyst:	Tammie Scheetz
Precip Date:	4/27/2007 08:20:00
Run Date:	4/20/2007 10:30:00
Run ID:	

Standard Blank Information

CPM Standard:	22.47 Std Counts	
CPM Blank:	0.06 Bkgd Counts	
Reference Activity:	30.4	pCi/m
Reference Date:	5/1/1989	
Conc. @ Precip:	30.16	pCi/m
Standard Efficiency:	0.21	cpm/dpm
Standard ID:	R05-011-226	

Quality Control Information

Type	Sample ID	QC Result	Original Result	Spike Recov %	RPD	RPD Limit	QCStd ID	Std Act pCi
DUP	C07040484-005A 1:1 dil	13.37	12.25		8.8%	27.1%		
DUP	C07040484-005A 1:1 dil	14.19	12.25		14.7%	26.8%		
DUP	C07040484-005A 2:1 co	28.57	22.96		21.8%	21.9%		
DUP	C07040484-005A 2:1 co	27.65	22.96		18.5%	21.8%		
LCS	LCS-RA226-2014	12.75	-0.08				R48-006-226	

BSC BSC BSC BSC BSC BSC BSC

BS Sample ID	BS Seq No	Sample Type	BSC Ra-226 pCi/L	Error 95%	BS Vol(ml)	BS TareWt (g)	BS FinalWt (g)	Rec (%)	Analysis Date/Time	Count Time	Gross (cpm)	Net (cpm)	Elapsed Time	Ingrowth Factor
STD-RA226-2014	01	CCV	30.16	1.62	500	9.5179	9.5703	0.83	05/14/07 08:44:00	60	22.47	22.41	408.40	3.86
C07040484-005A 1:1 dil	02	SAMP	12.25	1.07	500	9.4759	9.5245	0.77	05/14/07 08:44:00	60	8.5	8.44	408.40	3.86
C07040484-005A 1:1 dil	03	DUP	13.37	1.12	500	9.4881	9.5372	0.78	05/14/07 08:44:00	60	9.37	9.31	408.40	3.86
C07040484-005A 1:1 dil	04	DUP	14.19	1.15	500	9.4801	9.5291	0.78	05/14/07 08:44:00	60	9.92	9.86	408.40	3.86
C07040484-005A 2:1 co	05	SAMP	22.96	1.47	500	9.5138	9.5624	0.77	05/14/07 08:44:00	60	15.88	15.82	408.40	3.86
C07040484-005A 2:1 co	06	DUP	28.57	1.61	500	9.4888	9.5386	0.79	05/14/07 08:44:00	60	20.23	20.17	408.40	3.86
C07040484-005A 2:1 co	07	DUP	27.65	1.53	500	9.4822	9.5358	0.85	05/14/07 08:44:00	60	21.07	21.01	408.40	3.86
MB-RA226-2014	08	MBLK	-0.08	0.08	500	9.4952	9.5494	0.86	05/14/07 08:44:00	60	0	-0.06	408.40	3.86
RB-RA226-2014	09	RBLK	0.07	0.13	500	9.5357	9.5936	0.92	05/14/07 08:44:00	60	0.12	0.06	408.40	3.86
LCS-RA226-2014	10	LCS	12.75	1.00	500	9.5193	9.5775	0.92	05/14/07 08:44:00	60	10.58	10.52	408.40	3.86
STD-228-RA226-2014	11	CCV	-0.08	0.08	500	9.5049	9.5592	0.86	05/14/07 08:44:00	60	0	-0.06	408.40	3.86
LCS-228-RA226-2014	12	LCS	-0.08	0.08	500	9.4976	9.5516	0.86	05/14/07 08:44:00	60	0	-0.06	408.40	3.86

BATCH SAMPLES (BS)
BATCH ID
SAMPLE SEQNO
BATCH SAMPLE COUNTS
SAMPLE SEQ N

BATCH NO
6173
6

REFACTORY

Look at 2007 then 2006

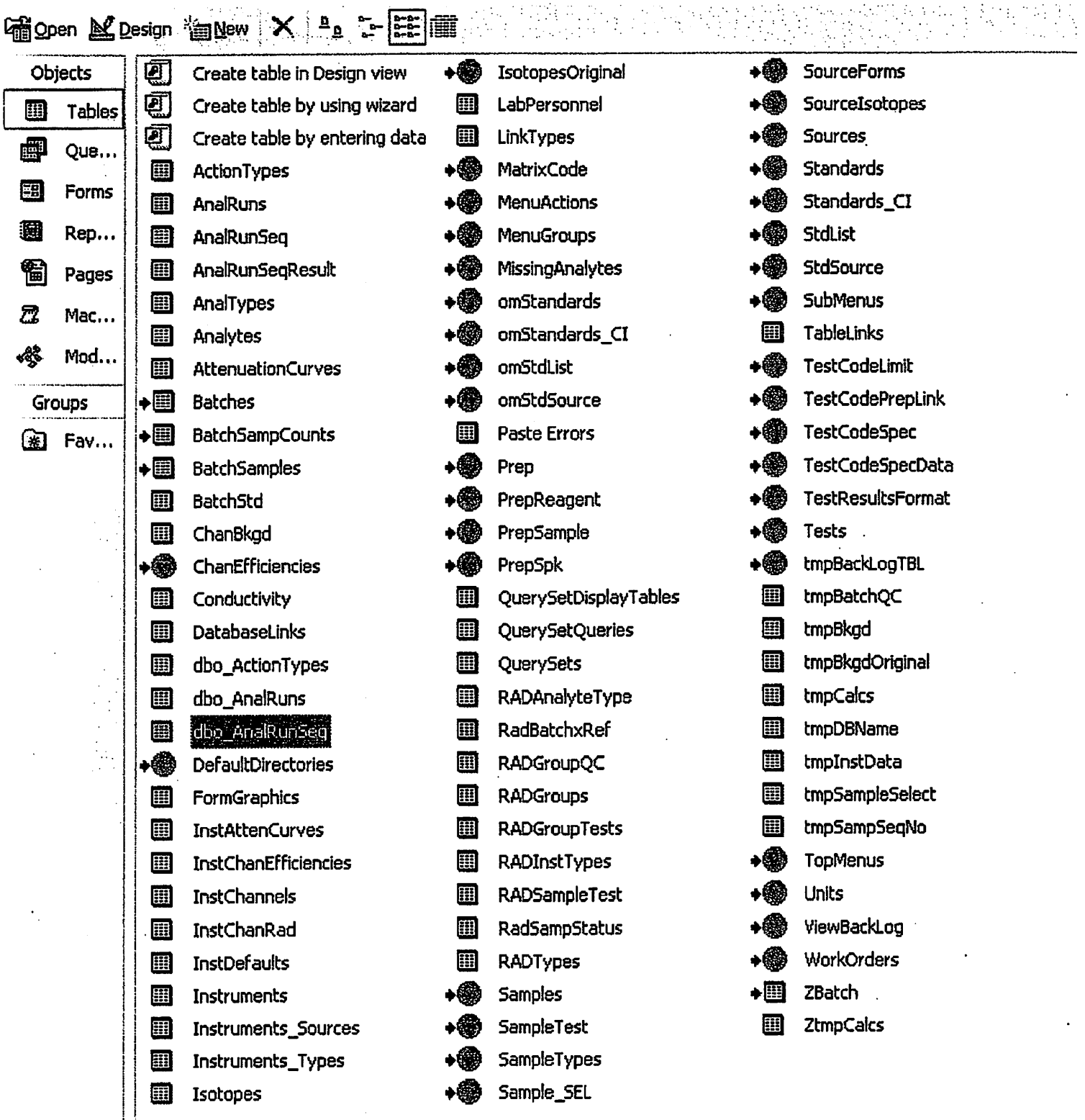
Standard Efficiency
tmp Bkgd. Std Efficiency

226 - 31,000
228 - 17,000

226-218.xls

Attachment A

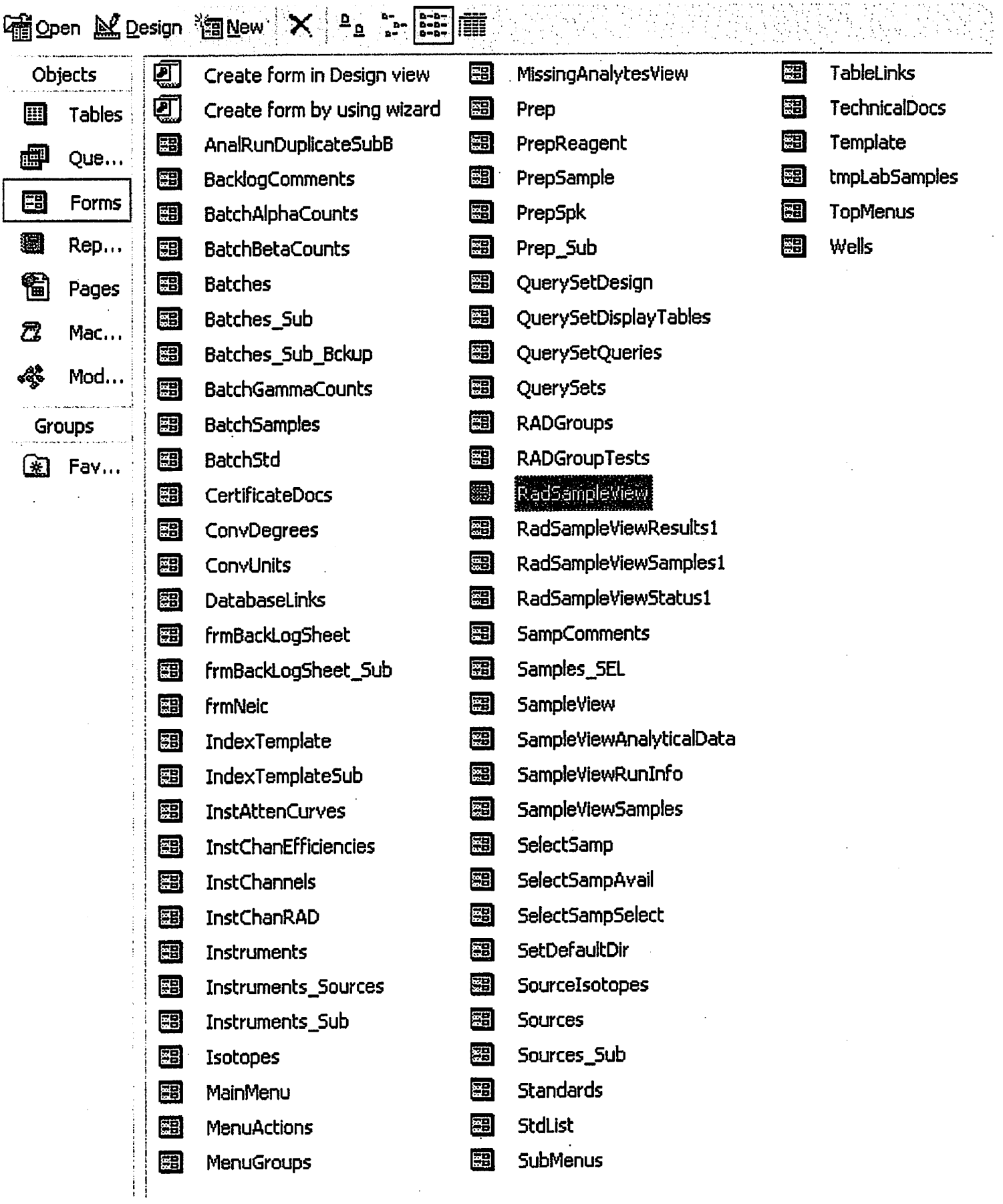
Attachment B



Attachment C

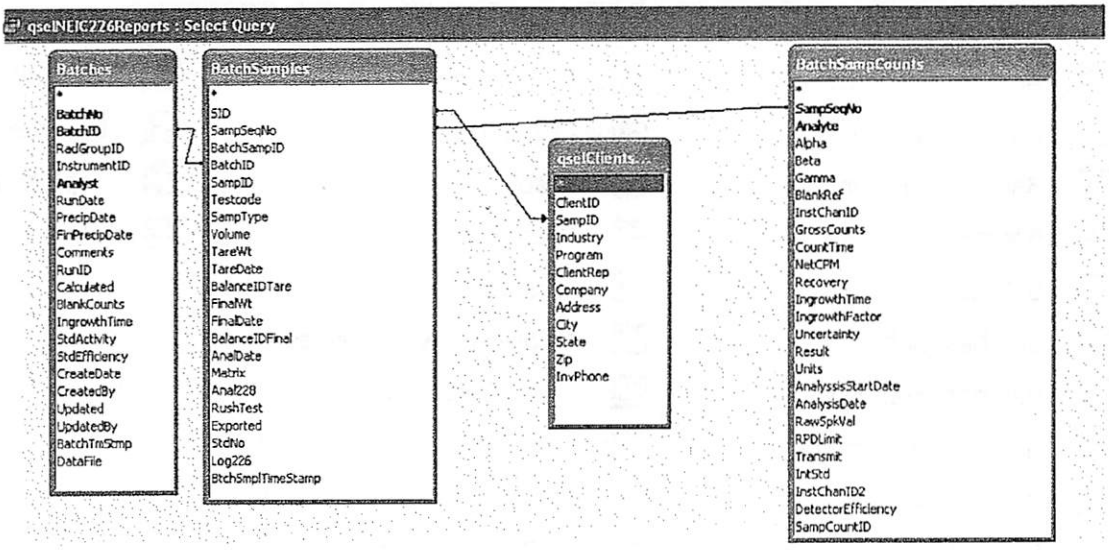
```
App_Roles     EXEC app_roles
Backlog_Commentsqry          SELECT tmpBackLogTBL.SampID, tmpBackLogTBL.Comments
FROM BatchSamples INNER JOIN tmpBackLogTBL ON (BatchSamples.Testcode =
tmpBackLogTBL.TestCode) AND (BatchSamples.SampID = tmpBackLogTBL.SampID)
WHERE (((BatchSamples.BatchID)=[Forms]![Batches]![Pages]![BatchID]))
ORDER BY BatchSamples.SampSeqNo;

BatchAlphaCountsQry          SELECT Batches.BatchID, BatchSamples.BatchSampID,
BatchSamples.SampID, BatchSampCounts.Analyte, BatchSampCounts.InstChanID,
BatchSampCounts.GrossCounts, BatchSampCounts.CountTime, BatchSampCounts.NetCPM,
BatchSampCounts.Uncertainty, BatchSampCounts.AnalyssisStartDate,
BatchSampCounts.AnalysisDate, BatchSampCounts.Alpha, BatchSampCounts.Beta,
BatchSampCounts.Gamma, BatchSampCounts.Result, BatchSampCounts.Units,
BatchSampCounts.BlankRef, BatchSamples.Log226, BatchSampCounts.Transmit
FROM Batches INNER JOIN (BatchSamples INNER JOIN BatchSampCounts ON
BatchSamples.SampSeqNo=BatchSampCounts.SampSeqNo) ON
Batches.BatchID=BatchSamples.BatchID
WHERE (((BatchSampCounts.Alpha)<>0))
ORDER BY Batches.BatchID, BatchSamples.BatchSampID;

BatchAppendAlphaAnalytesQry PARAMETERS Bat Text ( 255 );
INSERT INTO BatchSampCounts ( SampSeqNo, Analyte, Alpha )
SELECT BatchSamples.SampSeqNo, RADAnalyteType.Analyte AS Analyte,
RADAnalyteType.Alpha
FROM ((BatchSamples INNER JOIN Tests ON BatchSamples.Testcode = Tests.TestCode)
INNER JOIN RADAnalyteType ON Tests.TestNo = RADAnalyteType.TestNo) INNER JOIN
TestCodeLimit ON (TestCodeLimit.Analyte = RADAnalyteType.Analyte) AND
(Tests.TestCode = TestCodeLimit.TestCode)
WHERE (((BatchSamples.SampSeqNo) Not In (SELECT SampSeqNo from BatchSampCounts
WHERE Alpha<>0 )) AND ((RADAnalyteType.Alpha)<>0) AND
((BatchSamples.BatchID)=[Bat]));

BatchAppendBetaAnalytesQry  PARAMETERS Bat Text ( 255 );
INSERT INTO BatchSampCounts ( SampSeqNo, Analyte, Beta )
SELECT BatchSamples.SampSeqNo, RADAnalyteType.Analyte AS Analyte,
RADAnalyteType.Beta
FROM ((BatchSamples INNER JOIN Tests ON BatchSamples.Testcode = Tests.TestCode)
INNER JOIN RADAnalyteType ON Tests.TestNo = RADAnalyteType.TestNo) INNER JOIN
TestCodeLimit ON (TestCodeLimit.Analyte = RADAnalyteType.Analyte) AND
(Tests.TestCode = TestCodeLimit.TestCode)
WHERE (((BatchSamples.SampSeqNo) Not In (SELECT SampSeqNo from BatchSampCounts
WHERE Beta<>0 )) AND ((RADAnalyteType.Beta)<>0) AND
((BatchSamples.BatchID)=[Bat]));

BatchAppendGammaAnalytesQry PARAMETERS Bat Text ( 255 );
INSERT INTO BatchSampCounts ( SampSeqNo, Analyte, Gamma )
SELECT BatchSamples.SampSeqNo, RADAnalyteType.Analyte AS Analyte,
RADAnalyteType.Gamma
FROM ((BatchSamples INNER JOIN Tests ON BatchSamples.Testcode = Tests.TestCode)
INNER JOIN RADAnalyteType ON Tests.TestNo = RADAnalyteType.TestNo) INNER JOIN
TestCodeLimit ON (TestCodeLimit.Analyte = RADAnalyteType.Analyte) AND
(Tests.TestCode = TestCodeLimit.TestCode)
WHERE (((BatchSamples.SampSeqNo) Not In (SELECT SampSeqNo from BatchSampCounts
WHERE Gamma<>0 )) AND ((RADAnalyteType.Gamma)<>0) AND
((BatchSamples.BatchID)=[Bat]));
```

Attachment D



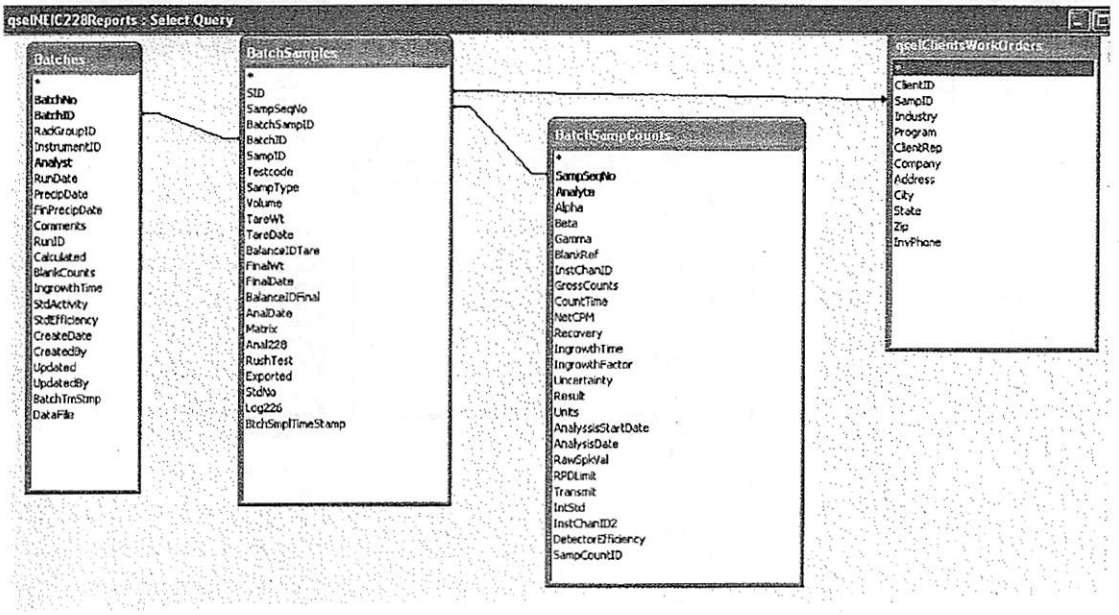
Attachment E
1 of 3

226



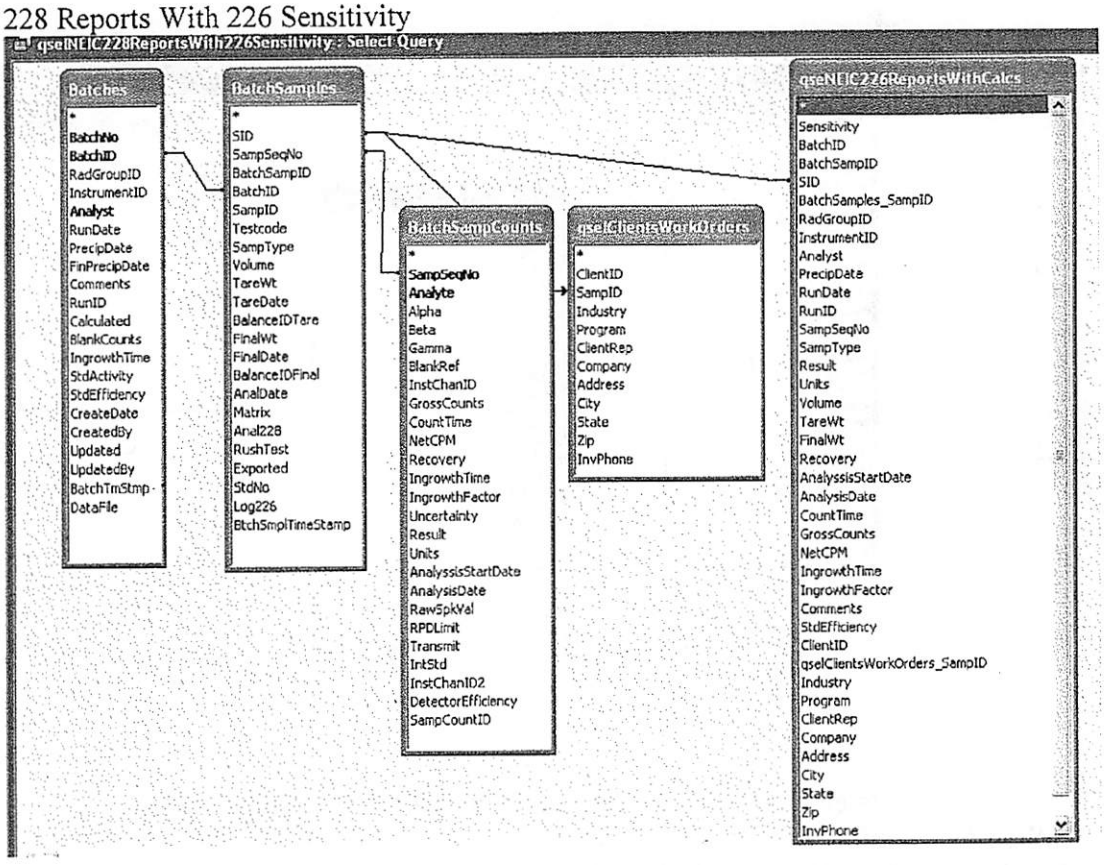
SELECT Batches.BatchID, BatchSamples.BatchSampID, BatchSamples.SID, BatchSamples.SampID, Batches.RadGroupID, Batches.InstrumentID, Batches.Analyst, Batches.PrecipDate, Batches.RunDate, Batches.RunID, BatchSamples.SampSeqNo, BatchSamples.SampType, BatchSampCounts.Result, BatchSampCounts.Units, BatchSamples.Volume, BatchSamples.TareWt, BatchSamples.FinalWt, BatchSampCounts.Recovery, BatchSampCounts.AnalyssisStartDate, BatchSampCounts.AnalysisDate, BatchSampCounts.CountTime, BatchSampCounts.GrossCounts, BatchSampCounts.NetCPM, BatchSampCounts.IngrowthTime, BatchSampCounts.IngrowthFactor, Batches.Comments, Batches.StdEfficiency, qselClientsWorkOrders.ClientID, qselClientsWorkOrders.SampID, qselClientsWorkOrders.Industry, qselClientsWorkOrders.Program, qselClientsWorkOrders.ClientRep, qselClientsWorkOrders.Company, qselClientsWorkOrders.Address, qselClientsWorkOrders.City, qselClientsWorkOrders.State, qselClientsWorkOrders.Zip, qselClientsWorkOrders.InvPhone
FROM (Batches INNER JOIN (BatchSamples INNER JOIN BatchSampCounts ON BatchSamples.SampSeqNo = BatchSampCounts.SampSeqNo) ON Batches.BatchID = BatchSamples.BatchID) LEFT JOIN qselClientsWorkOrders ON BatchSamples.SID = qselClientsWorkOrders.SampID
WHERE (((Batches.RadGroupID)="RA226-CBM" Or (Batches.RadGroupID)="RA226") AND ((BatchSampCounts.AnalysisDate)>#9/1/2005#))
ORDER BY Batches.BatchID, BatchSamples.BatchSampID;

228



SELECT Batches.BatchID, BatchSamples.BatchSampID, BatchSamples.SID, BatchSamples.SampID, Batches.RadGroupID, Batches.InstrumentID, Batches.Analyst, Batches.PrecipDate, Batches.RunDate, Batches.RunID, BatchSamples.SampSeqNo, BatchSamples.SampType, BatchSampCounts.Result, BatchSampCounts.Units, BatchSamples.Volume, BatchSamples.TareWt, BatchSamples.FinalWt, BatchSampCounts.Recovery, BatchSampCounts.AnalyssisStartDate, BatchSampCounts.AnalysisDate, BatchSampCounts.CountTime, BatchSampCounts.GrossCounts, BatchSampCounts.NetCPM, BatchSampCounts.IngrowthTime, BatchSampCounts.IngrowthFactor, Batches.Comments, Batches.StdEfficiency, qselClientsWorkOrders.ClientID, qselClientsWorkOrders.SampID, qselClientsWorkOrders.Industry, qselClientsWorkOrders.Program, qselClientsWorkOrders.ClientRep, qselClientsWorkOrders.Company, qselClientsWorkOrders.Address, qselClientsWorkOrders.City, qselClientsWorkOrders.State, qselClientsWorkOrders.Zip, qselClientsWorkOrders.InvPhone
FROM (Batches INNER JOIN (BatchSamples INNER JOIN BatchSampCounts ON BatchSamples.SampSeqNo = BatchSampCounts.SampSeqNo) ON Batches.BatchID = BatchSamples.BatchID) LEFT JOIN qselClientsWorkOrders ON BatchSamples.SID = qselClientsWorkOrders.SampID
WHERE (((Batches.RadGroupID)="RA228-CBM" Or (Batches.RadGroupID)="RA228") AND ((BatchSampCounts.AnalysisDate)>#9/1/2005#))
ORDER BY Batches.BatchID, BatchSamples.BatchSampID;

228 Reports With 226 Sensitivity



SELECT Batches.BatchID, BatchSamples.BatchSampID, BatchSamples.SID, BatchSamples.SampID, Batches.RadGroupID, Batches.InstrumentID, Batches.Analyst, Batches.PrecipDate, Batches.RunDate, Batches.RunID, BatchSamples.SampSeqNo, BatchSamples.SampType, BatchSampCounts.Result, BatchSampCounts.Units, BatchSamples.Volume, BatchSamples.TareWt, BatchSamples.FinalWt, BatchSampCounts.Recovery, BatchSampCounts.AnalyssisStartDate, BatchSampCounts.AnalysisDate, BatchSampCounts.CountTime, BatchSampCounts.GrossCounts, BatchSampCounts.NetCPM, BatchSampCounts.IngrowthTime, BatchSampCounts.IngrowthFactor, Batches.Comments, Batches.StdEfficiency, qselClientsWorkOrders.ClientID, qselClientsWorkOrders.SampID, qselClientsWorkOrders.Industry, qselClientsWorkOrders.Program, qselClientsWorkOrders.ClientRep, qselClientsWorkOrders.Company, qselClientsWorkOrders.Address, qselClientsWorkOrders.City, qselClientsWorkOrders.State, qselClientsWorkOrders.Zip, qselClientsWorkOrders.InvPhone
FROM ((Batches INNER JOIN (BatchSamples INNER JOIN BatchSampCounts ON BatchSamples.SampSeqNo = BatchSampCounts.SampSeqNo) ON Batches.BatchID = BatchSamples.BatchID) LEFT JOIN qselClientsWorkOrders ON BatchSamples.SID = qselClientsWorkOrders.SampID) INNER JOIN qseNEIC226ReportsWithCalcs ON BatchSamples.SID = qseNEIC226ReportsWithCalcs.SID
WHERE (((Batches.RadGroupID)="RA228-CBM" Or (Batches.RadGroupID)="RA228") AND ((BatchSampCounts.AnalysisDate)>#9/1/2005#))
ORDER BY Batches.BatchID, BatchSamples.BatchSampID;

United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number
0800-0497

Case Title:
Energy Laboratories, Inc.

Reporting Office:
Denver, CO, Area Office

Subject of Report:
Return of Evidence to Energy Laboratories, Inc.

Activity Date:
May 2, 2012

Reporting Official and Date:
[redacted], SA
08-MAY-2012, Signed by: [redacted], *SA*

Approving Official and Date:
[redacted], SAC
08-MAY-2012, Approved by: [redacted], *ASAC*

SYNOPSIS

On May 2, 2012, all evidence seized during the search warrant executed at Energy Laboratories, Inc., Casper, Wyoming, on October 30, 2007, was returned to ELI.

DETAILS

On May 2, 2012, all evidence seized during the search warrant executed at Energy Laboratories, Inc., Casper, Wyoming, on October 30, 2007, was returned to ELI. A total of four pallets each containing approximately 40 boxes and an additional 11 loose boxes of documents were returned.

On April 27, 2012, final arrangements for ELI's contractor, [redacted] from Quicksilver Express Courier, to pick up ELI's evidence was received via e-mail from [redacted], Purchasing Department, ELI Billings, Montana office. Attached is a copy of said e-mail.

Also attached is a Receipt of Return of Evidence dated May 2, 2012, summarizing all evidence returned to ELI. Included in the attachment are the two original Chain of Custody forms (COC #5 & #6) signed by [redacted] the Quicksilver contractor/trucker that picked up the evidence on behalf of ELI.

ATTACHMENT

1. ELI E-mail Confirming Evidence Pick-up by Quicksilver Express Courier
2. Receipt for Return of Evidence and Chain of Custody Forms #5 & #6

pickup authorization
purchasing
to:
[redacted]
04/27/2012 02:32 PM
Hide Details
From: "purchasing" <purchasing@energylab.com>

To: [redacted]/CID/R8/USEPA/US@EPA

History: This message has been replied to.

Agent [redacted],

I am sending notice of who will be Energy Laboratories, Inc. authorized courier to pick up 5 pallets of 160 boxes from your office location at 1595 Wynkoop Street in Denver. Quicksilver Express Courier will arrive Wednesday May 2, 2012 at 12 noon.

Following is the information needed to complete the "Contractor Access Request Form":

1. Quicksilver Express Courier
2. 1400 Quail Street, Lakewood, Colorado 80215
3. General Manager [redacted]
4. 303-232-6700
5. [redacted] 02-1954
6. 05-02-12, 12 Noon
7. Freightliner, 09, Indiana 1139586
8. [redacted]

I have provided your name and phone numbers to the Quicksilver Driver as the contact person.

Thank you,

[redacted]
Purchasing
toll free: [redacted]
direct: [redacted]
fax: 406.869.6290
purchasing@energylab.com

=

United States Environmental Protection Agency
Office of Criminal Enforcement, Forensics and Training

RECEIPT FOR RETURN OF EVIDENCE

RECEIVED FROM	CASE NUMBER
[redacted] Special Agent EPA CID 1595 Wynkoop Street Denver, Co 80202	0800-0497
	DATE May 2, 2012
PURPOSE Return boxes of evidence seized during the 10/30/2007 search warrant to Energy Laboratories, Inc.	OFFICE EPA CID Denver Area Office

ITEM NO.	ITEM DESCRIPTION
1	Pallet of boxes (documents)
2	Pallet " " "
3	Pallet " " "
4	Pallet " " "
5	Eleven (11) boxes
	(Above boxes of search warrant documents, etc
	were returned to its owner,
	ELI because the investigation
	is being closed - Case declined
	for prosecution.)
	See attached COC #5 and COC #6.

RECEIVED BY [redacted] 39 [redacted] Quicksilver Express Courier - on behalf of Energy Laboratories	DATE May 2, 2012
WITNESS [redacted] Special Agent, EPA CID	DATE May 2, 2012

OFFICIAL USE ONLY

United States Environmental Protection Agency
Criminal Investigation Division

CHAIN OF CUSTODY

COC #5

Case Title:	Office:	Case Number:
Energy Laboratories, Inc. - Casper	Denver Area Office	0800-0497
Location Collected: Main Laboratory - **SITE 1** 2393 Salt Creek Highway Casper, WY 82601	**Date Collected:** October 30, 2007	☒Search Warrant ☐Grand Jury Subpoena ☐Safekeeping ☐Eavesdropping/Surveillance ☐Other
Name and Address of Owner Energy Laboratories, Inc. - Casper		**Storage Location:** EPA CID office
		Date Removed from Storage: 5/2/2012 [redacted]

Remarks:
Evidence seized as a result of a search warrant executed on October 30, 2007.

Evidence Custodian: [redacted] SA EPA CID

Collected by:	Signature:	Relinquished to:	Date:
[redacted]	[redacted]	[redacted]	5/2/12
Relinquished to:	Date:	Relinquished to:	Date:
		Evidence returned to ELI [redacted]	
Relinquished to:	Date:	Relinquished to: due to declination of prosecution	Date: 5/6/12
Relinquished to:	Date:	Relinquished to:	Date:

Exhibit Number	Description
1	150 boxes of evidence: Exhibits D0001-D000250. See attached Search Warrant Inventory (Word file)
2	Computer images seized by NCFL. See attached chain of custody from S/A Gilpin.
	(NOTE: Original computer evidence and COC are maintained by NCFL)
Correction	2/28/08 - Total of 160 boxes. See Reconciled Inventory [redacted]

COC #5

United States Environmental Protection Agency
Criminal Investigation Division

CHAIN OF CUSTODY

COC #6

Case Title:	Office:	Case Number:
Energy Laboratories, Inc. - Casper	Denver Area Office	0800-0497

Location Collected:	Date Collected:	☒Search Warrant ☐Grand Jury Subpoena ☐Safekeeping ☐Eavesdropping/Surveillance ☐Other
Radiochemistry Laboratory - **SITE 2** 2325 Kerzell Lane Casper, WY 82601	October 30, 2007	
Name and Address of Owner Energy Laboratories, Inc. - Casper		Storage Location: EPA CID Office
		Date Removed from Storage: 5/2/2012 [redacted]

Remarks:
Evidence seized as a result of a search warrant executed on October 30, 2007.
Evidence custodian: [redacted] SA EPA CID

Collected by:	Signature:	Relinquished to:	Date:
[redacted]	[redacted]	[redacted] 39	5/2/12
Relinquished to:	Date:	Relinquished to:	Date:
	Evidence returned to ELI		
Relinquished to:	Date:	Relinquished to: due to declination of prosecution	Date: [redacted] 5/2/12
Relinquished to:	Date:	Relinquished to:	Date:

Exhibit Number	Description
1	113 boxes of evidence: Exhibits 1-106; See attached Search Warrant Inventory - Signed by Defense Counsel Kevin Evans
	NOTE: the computer images listed as Exhibits 107-127 are maintained at NCFL
2	1 box (114th box added at end on "Receipt for Cash or Other Items") containing
	4 binders - Initialed by SA Jimmy Seidel + Sheryl Garling.
Correction	13 boxes. 14th added at end of Receipt for Cash [redacted]

COC #6

United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number
0800-0497

Case Title:
Energy Laboratories, Inc.

Reporting Office:
Denver, CO, Area Office

Subject of Report:
Interview of [redacted] EPA Contractor

Activity Date:
August 4, 2011

Reporting Official and Date:
[redacted]
Special Agent
18-MAY-2012, Signed by: [redacted]

Approving Official and Date:
[redacted]
Special Agent in Charge
21-MAY-2012, Approved by: [redacted]
Assistant Special Agent in Charge

SYNOPSIS

On August 4, 2011, [redacted] employee of Computer Sciences Corporation (CSC), a contractor for the EPA, was interviewed in connection with this investigation.

DETAILS

On August 4, 2011, Environmental Protection Agency (EPA) Criminal Investigation Division (CID) Special Agent (SA) [redacted] and U.S. Department of Justice (DOJ) Environmental Crimes Section (ECS) attorney [redacted] traveled to Louisiana to interview Larry Ferguson [redacted] (hereafter referred to as "[redacted] an employee of Computer Sciences Corporation (CSC), a contractor for the EPA. The interview was conducted at the U.S. Attorney's Office in New Orleans, Louisiana.

After identifying themselves through the display of credentials [redacted] agreed to an interview. The following information is a summary of the statements made by [redacted] during the interview:

[redacted] was asked to provide information regarding [redacted] educational background and work experience. [redacted] provided the following information with approximate dates of employment:

[redacted] advised that [redacted] graduated from Pennsylvania State University in 1976 with a Bachelor of Chemistry and has been working in the laboratory sciences field for the past 35 years. [redacted] stated [redacted] received specialized training in Berkley because it was the only educational facility that offered a PhD in Radiochemistry (RAD).

From 1976 to 1979 [redacted] was employed at the Salem Nuclear Generating Station as a Senior Health Physicist and Chemistry Technician.

From 1980 to approximately 1982, [redacted] was employed with Gulf States Utilities at the Riverbends Nuclear Power Plant in St. Francesville, Louisiana.

From 1982 to 1985, [redacted] stated [redacted] was employed at the Three Mile Island power plant as a RAD Supervisor after the incident that occurred in Three Mile Island in either 1980 or 1981. The plant was shut down.

From 1985 to 1987, [redacted] was employed for Canberra Industries in Meriden, Connecticut as a consultant for software development. [redacted] position was related to health physics and RAD protection. [redacted] was let go and the office was closed.

From 1987 to 1988, [redacted] was employed at KLM Engineering as a RAD Health Physics Software consultant out of Walnut Creek, California. [redacted] stated that [redacted] worked from home but traveled a lot. [redacted] advised [redacted] worked at KLM's clients' RAD laboratories troubleshooting and correcting problems.

From 1988 to 1989, [redacted] worked at Florida Power and Light in Miami, Florida as the Lab Manager for the overall chemistry and RAD projects relating to the two nuclear plants.

From 1990 to late 1992 [redacted] ran a RAD monitoring program at Princeton University in New Jersey through [redacted] employer, Bartlett (also known as BHI Energy or Bartlett Services). Bartlett's main office was located in Massachusetts. The contract at Princeton was on a six month renewal.

From 1993 to the end of 1994 [redacted] was employed by Barringer Labs in Golden, Colorado as the RAD Manager. [redacted] stated this was a commercial environmental lab that is now defunct.

From early 1995 through July 1995 [redacted] was employed at American Analytical Labs as the Lab Director in Arizona. The lab was shut down by the state for environmental fraud. The lab performed drinking water analyses for the state of Arizona.

From July 1995 through 2005 [redacted] was employed by Canberra Industries performing training on software products and new instrumentation. [redacted] stated [redacted] travelled all over the United States. [redacted] worked on the Rocky Flats Project as a consultant conducting waste disposal characterizations for burial of RAD waste. Canberra won the bid for the clean-up and promoted [redacted] to the Director of Analytical Services for the Rocky Flats Project. [redacted] subsequently began working on the Los Alamos contract once the Rocky Flats Project began to shut down operations.

From 2005 through May 2007, [redacted] was employed at American Radiation services (ARS) in Port Allen, Louisiana as the Lab Director for RAD. ARS was a commercial RAD lab.

ECS [redacted] asked [redacted] if [redacted] was ever asked to leave any of [redacted] previously held positions throughout this career. [redacted] replied that [redacted] has never been asked to leave any of [redacted] positions.

From May 2007 to the present, [redacted] has been employed with Computer Services Corporation headquartered in Virginia. [redacted] stated [redacted] works out of [redacted] home in Louisiana. [redacted] is a Senior RAD Chemist and [redacted] responsibilities include conducting performance audits for the EPA Office of Water (OW). [redacted] direct contact with EPA OW is [redacted] Through CSC's contract with EPA's Waster Security Division [redacted] has participated in the Selected Analytical methods (SAM) Manual for EPA's Homeland Security Division. [redacted] stated [redacted] has consulted, provided updates and written papers for the SAM Manual. [redacted] has also written updates for the Federal Register and reviews analytical methods for updates. [redacted] explained that the current contract with EPA is for one year with a renewal for one additional year. There are a total of four possible renewals. [redacted] explained that the option periods for the contract are for a total of up to five years.

[redacted] estimates [redacted] conducts 12 EPA Drinking Water (DW) Certification audits a year. The

audits are detailed and time consuming. [redacted] advised it takes one week to complete the data review prior to the audit, one week to travel to the laboratory and perform the audit, and two weeks to generate the lab audit report. [Investigator's Note: The audit report is officially called the "On-Site Laboratory Assessment Report (SDWA), Radiochemistry Report."]

ECS [redacted] asked if there is anyone else that performs these audits. [redacted] replied [redacted] is the only contractor for the DW Program performing RAD DW audits for the EPA. [redacted] was the CSC RAD chemist that performed DW audits for EPA prior to [redacted] left CSC to go work for Energy Laboratories, Inc. (ELI), Casper, Wyoming. [redacted] stated [redacted] did not personally know [redacted] but knew of [redacted] would see [redacted] name on old audit reports.

[redacted] was asked who participated in the 2008 RAD audit at ELI Casper. [redacted] replied that [redacted] and [redacted] from EPA Region 8 performed the audit. [redacted] stated [redacted] knew [redacted] from a previous audit [redacted] performed in Utah. The 2008 ELI Casper audit was a one-day audit. [redacted] stated [redacted] would never do a one day audit again. [redacted] said EPA was trying to save money and that "EPA Region 8 was always tight on (its) travel budget." There were three proposed audits for that time period: Intermountain, ELI Casper and the Colorado State lab. [redacted] stated, "(I) will never do that again. Prep takes too long." [redacted] advised that the audit at ELI Casper was "done in a hurry." It was understood that EPA wanted to group together as many audits as possible.

[redacted] explained that the minimum requirements specified in the contract for DW audits are listed in the Quality Assurance Project Plan (QAPP) Checklist. [redacted] advised a typical audit would take two full days to complete; from the opening meeting to the close out meeting and depending on how many tests the lab wanted to get certified on.

[redacted] recalled having to "push" to get through the EPA Region 8 audits in 2008. [redacted] stated the 2008 audit at ELI Casper was very organized but the lab did not have some of the records [redacted] ([redacted] wanted to see because "another agency" had the records. (Investigator's Note: The other agency [redacted] was referring to was EPA CID who seized a number of ELI Casper's records during a search warrant in October 2007.)

ECS [redacted] reviewed the 2008 final audit report on ELI Casper with [redacted] A copy of the 2008 final audit report is attached to this Investigative Activity Report (IAR). [redacted] stated that during the audit [redacted] interviewed [redacted] (although not checked off on the audit attendance form), [redacted] and [redacted]. [redacted] also interviewed technicians if they were present at the lab. [redacted] recalled the main person [redacted] spoke with was [redacted] RAD Supervisor [redacted] and Quality Assurance/Quality Control (QA/QC) Officer [redacted]. [redacted] advised the audit [redacted] performs is limited to the RAD portion of the lab.

[redacted] was asked if training records are significant. [redacted] replied training records are important because it shows the extent of training and the demonstration of capabilities of the analyst. [redacted] advised [redacted] wanted to see information about training received. When [redacted] asked for the records, [redacted] told [redacted] the records were taken by "another agency." ECS [redacted] asked [redacted] if [redacted] knew the records had been taken by EPA CID during a search warrant just prior to the RAD audit. [redacted] replied that [redacted] may have known but [redacted] did not. [redacted] stated [redacted]

heard a rumor that CID had an investigation open on ELI Casper. ECS [redacted] again asked if the training records were important. [redacted] replied the training records are significant pertaining to certification. [redacted] advised that as an auditor/contractor [redacted] makes a recommendation to certify or not certify a lab based on [redacted] observations during the audit and the lab's ability to perform. ECS [redacted] then asked [redacted] how [redacted] could recommend certifying a lab if [redacted] never saw the training records. [redacted] replied, "It is an audit finding." Every finding can be used to recommend "Not Certifiable." [redacted] advised [redacted] looked at the overall lab. [redacted] reviewed the data and believed the data was acceptable. [redacted] stated it was up to Region 8 to make a determination whether or not to certify the lab until the training records are received.

ECS [redacted] directed [redacted] to Section "7.6 Sample Collection, handling, and Preservation" (Page 3) of the audit report and asked that if the records were not available under this section would [redacted] recommend no certification. [redacted] stated it would depend on the "defensibility of the data; the overall picture and actual data. " [redacted] stated that as part of the audit [redacted] reviewed data runs for the samples. The data appeared to be valid because "it (result) could be reproduced." If records were not available then [redacted] would make a finding but it would be up to Region 8 to make the final decision.

[redacted] advised that most of the time [redacted] performs EPA DW audits [redacted] has an EPA Regional representative with [redacted] [redacted] was the EPA R8 representative that was with [redacted] during the ELI Casper audit.

[redacted] stated that if the training information is not available it does not affect the data. Training records do not affect the data if the data has been reviewed. [redacted] explained that [redacted] can look at the demonstration of capability and determine if the technician is capable of performing the analysis properly.

ECS [redacted] directed [redacted] to Section "3.0 General Comments" (Page 2) of the 2008 audit report. [redacted] advised the section refers to the sample log and standards for traceability. [redacted] stated [redacted] reviewed the log-in process at ELI Casper. [redacted] looked at how the samples were logged in, numbered, chain of custody; the process flow and how samples were tracked. [redacted] also reviewed how standards were tracked. If the standards were purchased [redacted] would look for certification of the standard and if the lab had a process to track the dilution.

[redacted] was asked if [redacted] was able to notice if dates were changed or altered. [redacted] replied that [redacted] had no way of knowing if dates had been changed and stated that [redacted] was with [redacted] throughout the audit.

[redacted] advised that when [redacted] began performing CSC audits for EPA the goal was to get labs operating at 80% capability. [redacted] believed the program is making progress at making the labs meet the bench marks through the use of EPA's Manual for the Certification of Laboratories Analyzing Drinking Water (hereafter referred to as "CM".) See attached copy of the manual. [redacted] stated that auditors "cannot look at everything. It is a snapshot in time. It is impossible to catch everything at every audit." [redacted] further stated that if something "looks good on paper' the auditor might miss things. [redacted] went on to say that if something looks "squirly" [redacted] ([redacted] asks the lab to provide the supporting information. [redacted] advised [redacted] picks random samples for

review during an audit; one for each year of the last three years covered by the audit along with all supporting data. [redacted] indicated [redacted] implemented this thorough process at the end of 2008. If there is an issue with the data, [redacted] stated [redacted] makes the lab defend the number they generated.

ECS [redacted] questioned [redacted] regarding the "serious" findings in the report. [redacted] advised that the term "serious" is a degree and stated that some findings are more "serious" than others. [redacted] indicated the overall picture needs to be looked at. ECS [redacted] asked what effect would an "extremely serious" finding have on the certification of the lab. [redacted] replied that an extremely serious finding would affect the auditor's recommendation and in [redacted] case [redacted] would recommend non certification. [redacted] further stated that "if a laboratory is falsifying records, then they are definitely not certifiable."

ECS [redacted] showed section "8.2 Laboratory Facilities" (Page 5 of the 2008 audit report) to [redacted] and asked [redacted] what it meant. [redacted] stated that ELI Casper was not monitoring the samples for radiation and thus not segregating the samples. [redacted] stated the lab was not monitoring because they did not have the meter required to monitor the samples.

[redacted] was asked about the 2004 audit performed at ELI Casper. [redacted] advised the 2004 audit report was not available to [redacted] until recently. [redacted] stressed [redacted] did not understand "why they bothered performing the audit because it was superfluous."

ECS [redacted] directed [redacted] to section "8.3 Analytical Methods" (Page 5 of 2008 audit report) and asked [redacted] to discuss it. [redacted] advised that ELI Casper was combining two methods. [redacted] stated that according to 40 CFR 141.25(a) only an approved method shall be used. Any modification to a method must be applied for and approved under the Alternate Test Procedure (ATP), 40 CFR 147. (Investigator's Note: The ATP is found under 40 CFR 136.)

[redacted] stated [redacted] compared ELI Casper's Standard Operating Procedures (SOPs) with the standard method and then compared the two methods ELI Casper was using. [redacted] advised that if a lab uses an alternative method, even if the data looks good, it is considered an extremely serious violation. [redacted] explained that the methods are designed to analyze DW and (unapproved) alternative methods cannot be used. ECS [redacted] asked if a violation for using an unapproved ATP was just a matter of form over substance. [redacted] replied it was not merely putting form over substance and explained that because the lab modified a method(s) which has not undergone peer testing there is no way to know if the alternative method or ATP is reliable. This is because the unapproved ATP had not undergone any type of proficiency testing (PT).

ECS [redacted] directed [redacted] attention to section "8.4 Sample Collection, Handling and Preservation" (Page 6 of the 2008 audit report) and asked [redacted] to discuss it. [redacted] advised that if ELI Casper is not monitoring the reagents the lab does not know if they are adding unnecessary contaminants or radiation into the samples during analysis. ELI Casper needed to implement a screening program. [redacted] stated that if the lab fails to implement a screening program then the data would be considered questionable and it could affect the accuracy of the data. ECS [redacted] asked [redacted] if this was "just a finding." [redacted] replied that all findings are serious issues and show a disregard for the certification process and manual. [redacted] stated [redacted] makes it a finding if the problem will adversely affect the data.

ECS [redacted] directed [redacted] to section "8.4.2 Requirement - CM Ch. VI, Section 6.1 (Check List Item 8.8)" (Page 6 of the 2008 audit report) and asked [redacted] to discuss it. [redacted] advised that ELI Casper did not require the field samplers to send a field blank of the reagent used. ECS [redacted] asked [redacted] if this could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] directed [redacted] to section "8.5 Radiochemistry Quality Assurance (Check List Item 9.2.2)" (Page 6 of the 2008 audit report) and asked [redacted] if a finding in this area could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] directed [redacted] to section "8.5.2 Requirement – CM Ch. VI, Section 7.7.1 (Check List Items 9.7.5 through 9.7.7)" (Page 6 of the 2008 audit report). This section documents that ELI Casper had relative percent differences (RPD) results that exceeded the calculated control limit. The audit report stated that "the precision of the sample preparation batch is questionable, and data reported from these results should be flagged as having questionable precision." ECS [redacted] asked [redacted] if a finding that the lab is not in compliance with this section could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] asked if lack of training of the analysts performing the analyses could affect the accuracy of the data. [redacted] replied that it could.

ECS [redacted] directed [redacted] to section "8.5.3 Requirement – CM Ch. VI, Section 7.7.1 (Check List Items 9.7.9 and 9.7.11)" (Page 7 of the 2008 audit report). This section documents that ELI Casper's LIMS (Laboratory Information Management System) was set up to monitor all methods at a +/- 30 percent acceptable criteria counting range rather than what was required for matrix spike (MS) performance (+/- 20 percent) for various analytes. Refer to the 2008 audit report for details. ECS [redacted] asked [redacted] if a finding that the lab is not in compliance with this section could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] directed [redacted] to section "8.5.4 Requirement – CM Ch. VI, Section 7.7.3 (Check List Items 9.7.13 and 9.7.15)" (Page 7 of the 2008 audit report). This section documents the assessment of preparation batch accuracy using laboratory fortified blanks (LFB) at ELI Casper. Again ELI Casper had its LIMS set up to monitor all methods at +/- 30 percent criteria counting range rather than the specific requirements. Refer to the attached 2008 audit report for details. ECS [redacted] asked [redacted] if a finding that the lab is not in compliance with this section could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] directed [redacted] to section "8.5.5 Requirement – CM Ch. VI, Section 7.7.3 (Check List Items 9.7.16)" (Page 8 of the 2008 audit report). This section discusses how ELI Casper is not assessing instrument drift during sample measurements. Refer to the 2008 audit report for details. ECS [redacted] asked [redacted] if a finding that the lab is not in compliance with this section could affect the accuracy of the data. [redacted] replied that it could affect the accuracy of the data.

ECS [redacted] asked [redacted] what the term "legally defendable data" means under section "9.0 Recommendations" (Page 8 of the 2008 audit report). [redacted] explained the term "legally defensible" means that the data was reviewed and [redacted] ([redacted] was able to say that the data

provided was calculated appropriately. The results reflected on the compliance monitoring sample result represent the real value.

ECS [redacted] asked [redacted] about the PT sampling process and ELI Casper. [redacted] advised there were no findings regarding ELI Casper's PT process but stated [redacted] reviewed the PTs as part of the audit. [redacted] explained that PT samples are required to be analyzed in the same way as the lab analyzes client samples on a daily basis. The lab is supposed to run the sample as an unknown and run it only once. ECS [redacted] point out that ELI Casper's 2011 audit report reflects the PT samples were run a total of four (4) times rather than just once as the lab runs its samples daily. [redacted] stated this activity was non-compliant with the methods and with the lab's own SOPs.

[redacted] explained there are only two PT providers for RAD DW: one in New York and one in Colorado. [redacted] advised that Environmental Resource Associates (ERA) is the main PT provider and operates out of Golden, Colorado. ERA changed its process requirements in either 2007 or 2008. ERA used to require three (3) results to be reported but then changed its requirements to one result. [redacted] explained that PT samples are the "lifeblood" of the labs. If a lab fails the PT its certification will be pulled and clients will stop using the lab's services.

[redacted] stated that during the 2008 audit [redacted] might not have looked at the total calculated values when reviewing the PTs. [redacted] may have made the assumption that ELI Casper was calculating it accurately. A review of the data showed that the lab had passing PT results. [redacted] stated that [redacted] does look at the supporting data for PTs but did not read the data package for the PTs in 2008. [redacted] had only sent [redacted] ([redacted] the PT results which only show if the lab passed or failed. [redacted] further advised [redacted] reviewed ELI Casper's PT results for the period 2004 through 2008 but only the results, not the supporting data.

[redacted] explained that EPA requires a lab pass one (1) PT per analyte. NELAP requires that a lab pass two (2) PTs per analyte. [redacted] indicated that the fact a PT provider stated ELI Casper passed the PT test "was enough for EPA in 2008."

ECS [redacted] directed [redacted] attention to section "9.0 Recommendations" in ELI Casper's 2011 audit report (Page 17) and asked [redacted] whose recommendations are noted in that section of the report. [redacted] advised those recommendations are the auditor's technical opinions. [redacted] was then asked why the 2008 audit report stated ELI Casper's data was legally defensible and in the 2011 audit report [redacted] ([redacted] listed recommendations for ELI Casper "to increase legal defensibility." [redacted] explained that for the 2011 audit [redacted] had experienced an opportunity to review ELI Casper's training records. ECS [redacted] questioned [redacted] use of the word "increase" when referring to legal defensibility. [redacted] stated that was a "generic" statement used in all recommendations. [redacted] advised the statement shows they are a progressive laboratory that want to increase the legal defensibility of the data by providing additional training to the employee.

[redacted] stated the audit was "the snapshot in time I had, looking at what I looked at." [redacted] said there were no recommendations made other than to correct the findings. [redacted] advised [redacted] did not know if ELI Casper was in "better shape in 2008" based on the "snapshot in time [redacted] had."

[redacted] stated that in 2008, ELI Casper had an acceptability (capability) rating of 87% while in 2011 it had an acceptability rating of 70%. ECS [redacted] asked if [redacted] could explain why the rating was worse in 2011. [redacted] did not believe it was a fair question and stated [redacted] could not explain if the rating was worse in 2011 because of the documentation presented to [redacted] or because [redacted] had more time to perform the audit compared to 2008.

[redacted] was asked if [redacted] discussed the report with [redacted] EPA Region 8's Drinking Water Certification Manager. [redacted] said [redacted] called her and told her about the problems (relating to the 2011 audit). [redacted] stated that the more [redacted] "dug" into ELI Casper's records the more problems [redacted] discovered.

[redacted] explained "when people did audits in the past it was a 4-hour audit. The lab director and auditors would sit down and shoot the bull and that was the audit." [redacted] stated that the purpose of NELAP was to improve the labs not that they were "coming out to catch you." It was to ensure capability and point out the problems to help the labs improve. [redacted] believed [redacted] was doing a service to the labs by pointing out deficiencies. [redacted] was asked if [redacted] believed [redacted] did a better service to ELI Casper in 2011 as opposed to 2008. [redacted] agreed that [redacted] did a better service to the lab in 2011.

[redacted] was asked about ELI Casper and its response to the 2011 audit. [redacted] stated [redacted] believed ELI Casper "is getting their data fraudulently" because of the lab's approach on doing background subtractions. [redacted] stated it "goes against a radiochemist and the RAD 'industry'." [redacted] believed ELI Casper is reporting the data fraudulently and stated ELI Casper was "doing it wrong compared to anybody else by any other lab. The way they (ELI Casper) are doing things affects the data quality."

[redacted] explained a spike occurs when the analyst adds a known amount of the target analyte to an aliquot of the field sample. The recovery of the matrix spike, i.e. +/- 20% is the acceptance criteria that identifies a problem and questions the validity of the data. The recovery, +/-20%, assures confidence in the data. Without matrix interference acceptable criteria for recovery would be +/- 10%; with matrix interference acceptable criteria for recovery would be +/- 20%. If the data results are outside the acceptable criteria range (+/- 10% or +/- 20%) the lab is supposed to discard the batch and re-analyze the data. ELI Casper set its criteria at +/- 30% because it did not want to re-analyze data because it is costly and time consuming.

[redacted] advised [redacted] did not believe ELI Casper's 2011 data was "legally defensible." [redacted] stated that no one from EPA Region 8 sent [redacted] ELI Casper's corrective action plan (CAP); [redacted] never saw the CAP. [redacted] advised [redacted] had no way of knowing if ELI Casper was falsifying data but believed ELI Casper was fraudulently reporting data to its customers. [redacted] stated there was "such a dictatorial approach in the lab that the analyst is afraid to do it (analysis) the right way."

[redacted] advised that during the 2011 audit at ELI Casper [redacted] interviewed [redacted], [redacted] refused to check off that [redacted] was interviewed. [redacted] advised that section "2.0 Personnel" lists the lab employees that were present during opening and closing meetings.

[redacted] reiterated that all audits are a snapshot in time and that [redacted] could not possibly check everything. The checklist is a guide to looking at key points. [redacted] stated [redacted] does a complete audit including a Quality Systems audit. [redacted] ([redacted] "must look at the total picture" because "it is physically impossible to look at everything. [redacted] advised that the 2008 snapshot was shorter than the 2011 snapshot.

[redacted] stated the EPA's DW certification program needs to codify the law in the CM by taking out the word "should" and replacing it with "shall." [redacted] further stated that the way the CM is currently written, it is merely a guidance document. However, if a laboratory wants to be certified to analyze drinking water then it must comply with the manual. [redacted] explained [redacted] interprets the word "should" in the manual as a "shall" 99% of the time because this is how the Regions interpret it.

[redacted] opined that South Carolina is the best DW lab in the country because the lab has one person dedicated to data validation.

[redacted] stated that [redacted] did not have a copy of the previous 2004 audit when [redacted] conducted the 2008 audit at ELI Casper. [redacted] had never seen it. [redacted] said [redacted] asked [redacted] for previous copies of ELI Casper's audits and that [redacted] sent [redacted] a copy of the 2004 audit last week. [redacted] stated this was the first time [redacted] saw the 2004 audit report.

[redacted] explained that in 2011 [redacted] "pushed" for electronic forms. [redacted] now uses the electronic documents, types in [redacted] notes and then provides the lab with an electronic copy of the documents including [redacted] comments/notes before [redacted] leaves. [redacted] explained [redacted] uses colored highlights to rate things such as: Green means "good"; Yellow means "let's talk about it;" and Red means "there is a problem."

[redacted] asked to "rescind" [redacted] previous statement that [redacted] had not seen the 2004 audit because [redacted] found a copy in [redacted] 2008 expansion file of documents received on ELI Casper. However, [redacted] stated [redacted] did not recall how [redacted] obtained a copy of the 2004 audit.

[redacted] stated that count time is also critical. "If you change it, you change the detection limit." [redacted] explained the detection limit must be at a certain concentration (maximum contaminant level or MCL) to determine the probability of cancer for a human for a specific isotope. The detection limit needs to be low enough to ensure contaminants can be measured. [redacted] advised that a detection limit is predicated upon a risk factor for cancer and tells whether or not the sensitivity was met.

[redacted] stated that radiochemistry does not have a requirement for method detection limit (MDL) studies to be conducted and referred to section "1.5 Initial and Ongoing Demonstrations of Proficiency for Analysts and Technicians" under Chapter 6 (Page VI-1) of the CM as a gray area. However, [redacted] advised that EPA's Office of Water enforces MDL studies. PTs are used by analysts and technicians to demonstrate proficiency. ELI Casper's 2011 audit report reflects on Page 11 that "the laboratory's MDL studies for gross alpha and gross beta failed with MDLs equal to 7 and 9 pCi/liter, respectively" where "the required detection limits are 3 and 4 pCi/liter."

[redacted] was asked if [redacted] knew what the "RL" or reporting limit might stand for in ELI Casper's lab reports. [redacted] stated the reporting limit might be referring to the Code of Federal Regulations regulatory limit but was not certain.

[redacted] advised that a required detection limit is found in 40 CFR 141.25, Table B. [redacted] explained that if a lab failed to meet the detection limit then it is questionable the lab can see a contaminant if present in the sample because the data is not reliable. [redacted] referred to Item Numbers 9.3.2 and 9.3.3 regarding instituting a monitoring program to ensure sensitivities for each analytical method does not exceed the detection limits specified in 40 CFR 141.25 Tables B & C. (Refer to the attached ELI Casper's 2011 Audit Checklist, page 61 of 79, for details.)

ECS [redacted] advised [redacted] that witnesses alleged [redacted] was instructing ELI Casper's reporters (staff that finalized lab reports) to change values on the Lead 210 analysis without any basis for the change, i.e. the samples were not reanalyzed. [redacted] advised that if there is data to substantiate a number (result) then it is valid. If a number is generated by the analysis then the numbers stands unless the sample is reanalyzed. [redacted] stated that samples must be reanalyzed because someone cannot just provide/plug-in a random number; "that is fraud."

[redacted] advised that training records maintained at the lab should include a "sign off" by a supervisor of an analyst or technician stating the individual had demonstrated and performed correctly. [redacted] referred to the CM, Chapter 6, section 1.5 where the guidance for the demonstration of performance capability can be found.

[redacted] advised that "after looking back at the 2008 audit I feel I did a disservice to my client" and explained [redacted] was not given sufficient time to conduct a thorough audit. [redacted] advised that in 2008 [redacted] was accompanied by [redacted] EPA Region 8, but stated that [redacted] "was just there." [redacted] did not review any data or participate in a "hands on" manner. According to [redacted] never gave [redacted] the final audit report to sign off on.

[redacted] stated that [redacted] performed ELI Casper's 2011 audit alone. [redacted] advised there were no travel funds available for the EPA Region 8 DW Certification Manager [redacted] to participate in the audit in person. [redacted] attended the opening and closing audit conferences with ELI Casper via conference call. [redacted] advised that the only EPA Region that was not personally present during an audit was EPA Region 8. All other regions had the EPA DW Certification Manager present.

Once again [redacted] was asked about the Recommendations section in the 2011 audit report. [redacted] advised that [redacted] made recommendations of how the lab could improve. [redacted] said the Certification Status chart (page 19 of the 2011 audit report) is the auditor's recommendations; however, the certification official at EPA can change the auditor's recommendation.

[redacted] recalled one instance where [redacted] recommendation was not followed (on an unrelated case). [redacted] stated [redacted] recommended short term provisional certification until the laboratory came into compliance and if the lab failed to comply then the certification would be pulled. The EPA official disagreed with [redacted] recommendation and gave the lab provisional certification until the next audit (which is approximately every three years).

[redacted] advised that if there were any follow up questions for [redacted] after the interview, SA [redacted] would need to call [redacted] and obtain approval because [redacted] received technical direction from [redacted] as per the contract with EPA.

ATTACHMENT

1. Manual For The Certification of Laboratories Analyzing Drinking Water, 2005
2. EPA 2008 Radiochemistry Audit Report for ELI Casper
3. EPA 2008 Radiochemistry Audit Checklist for ELI Casper
4. EPA 2011 Radiochemistry Audit Report for ELI Casper
5. EPA 2011 Radiochemistry Audit Checklist for ELI Casper